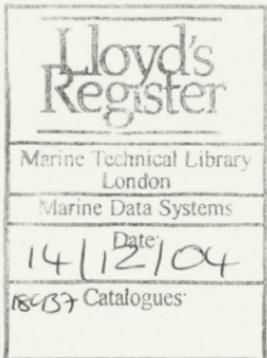
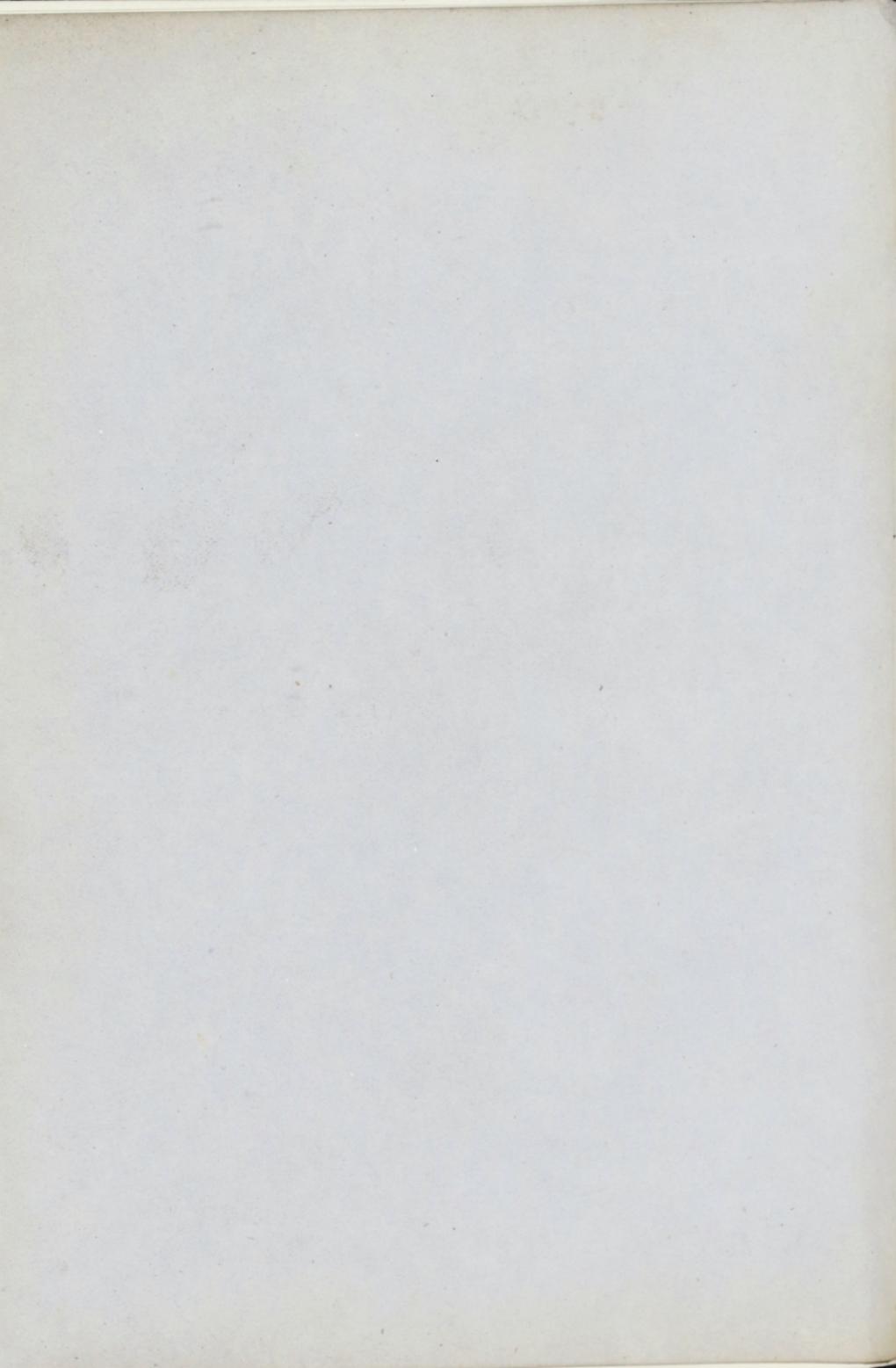
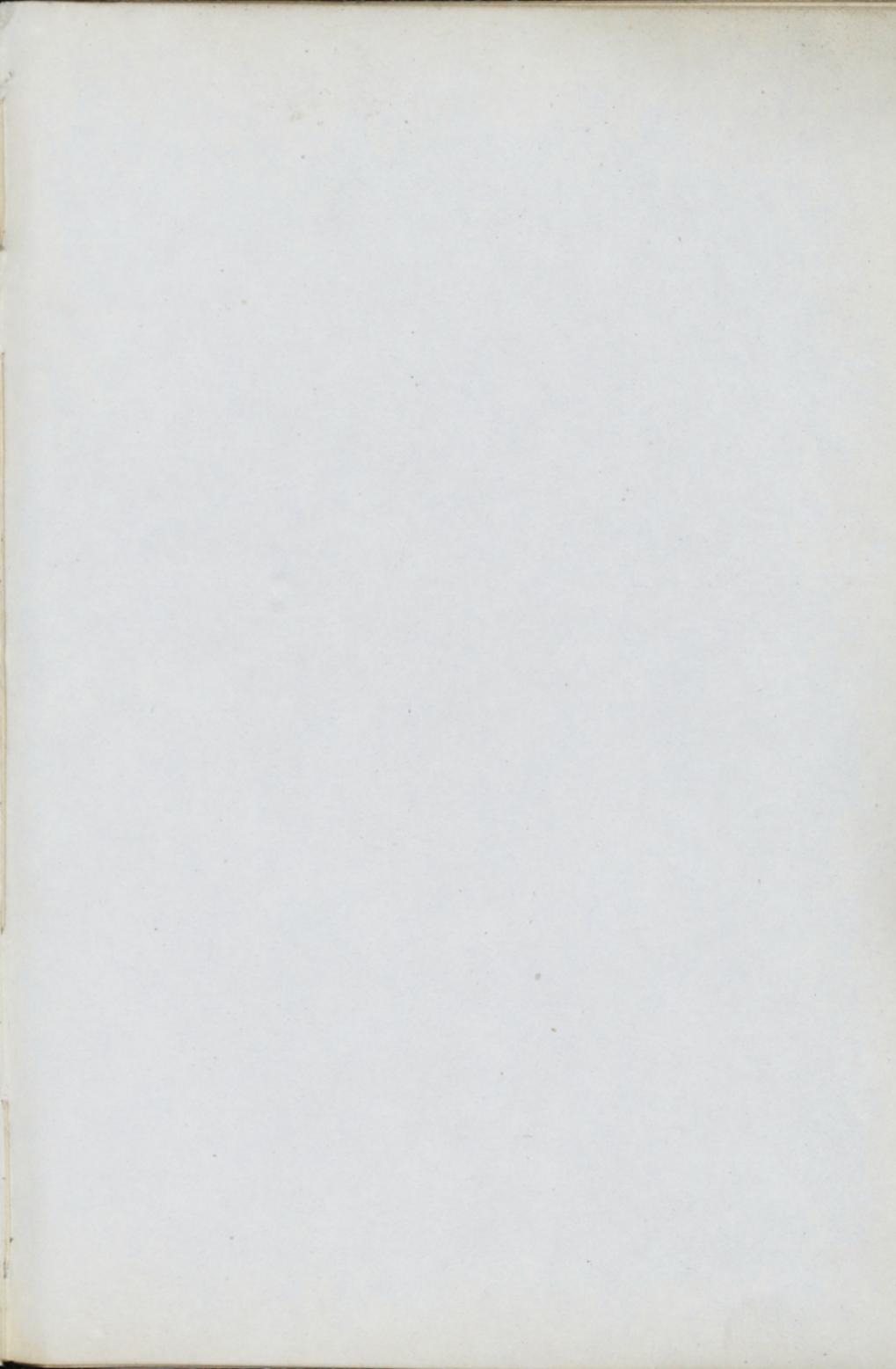


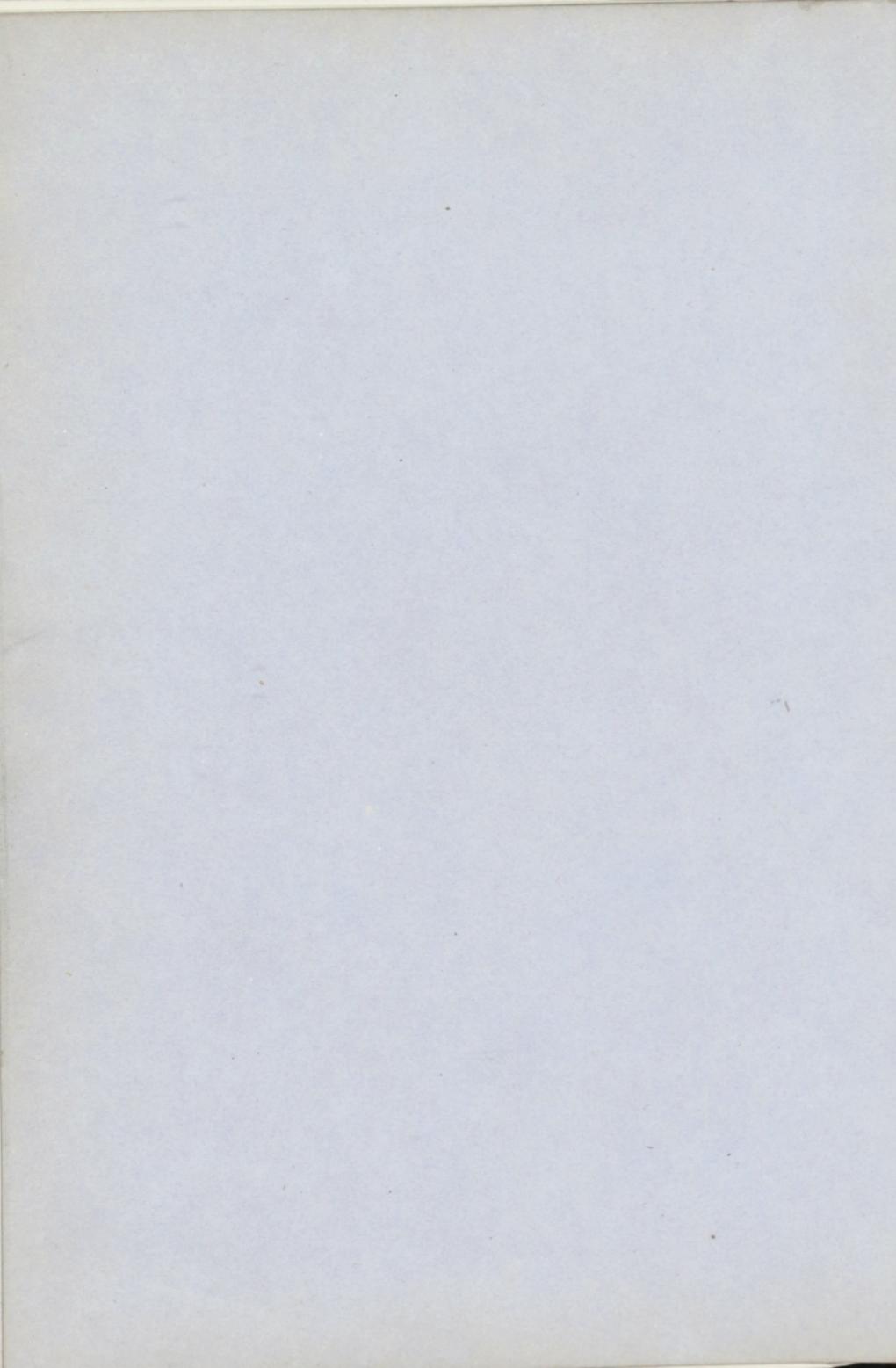
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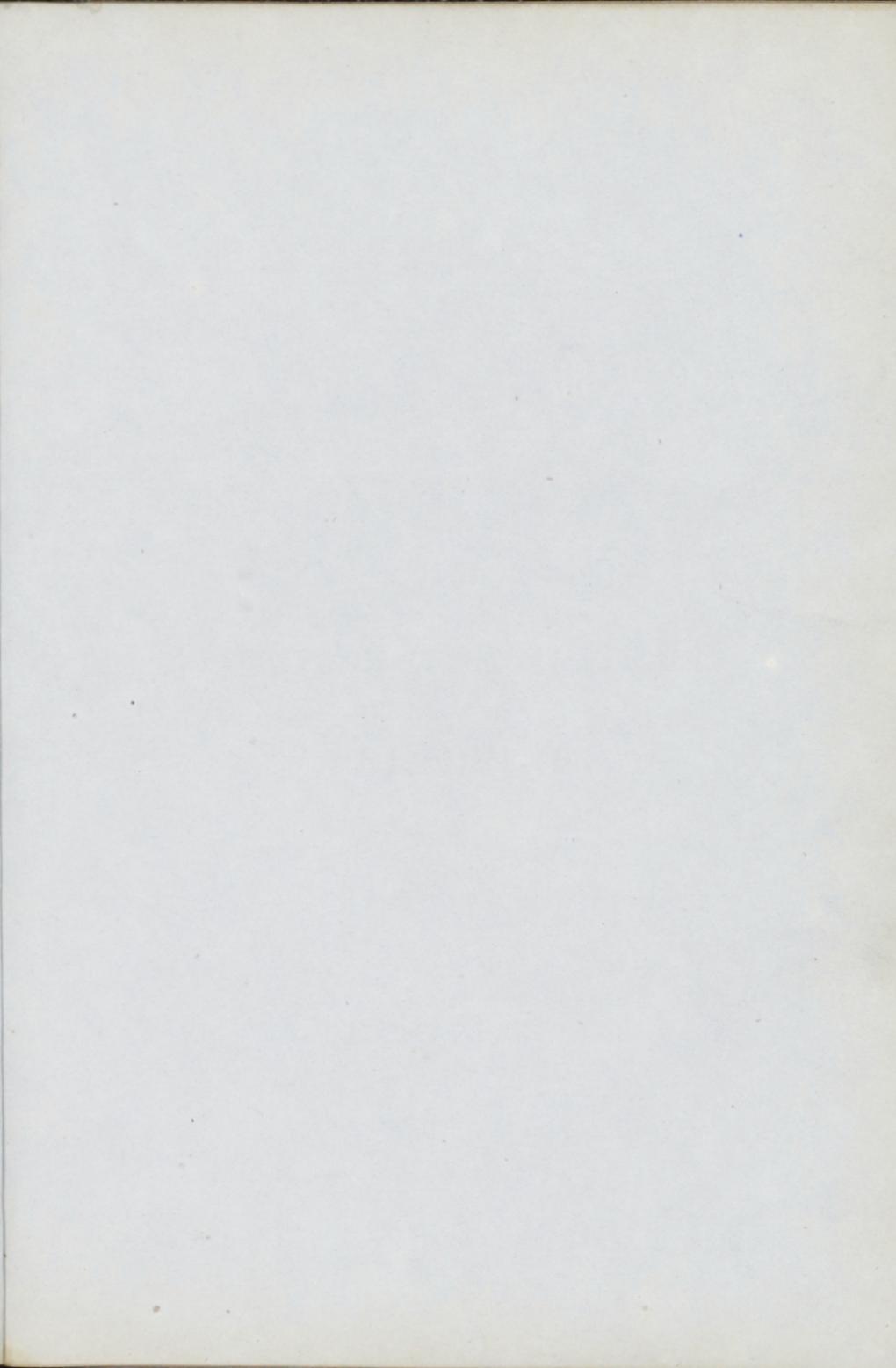


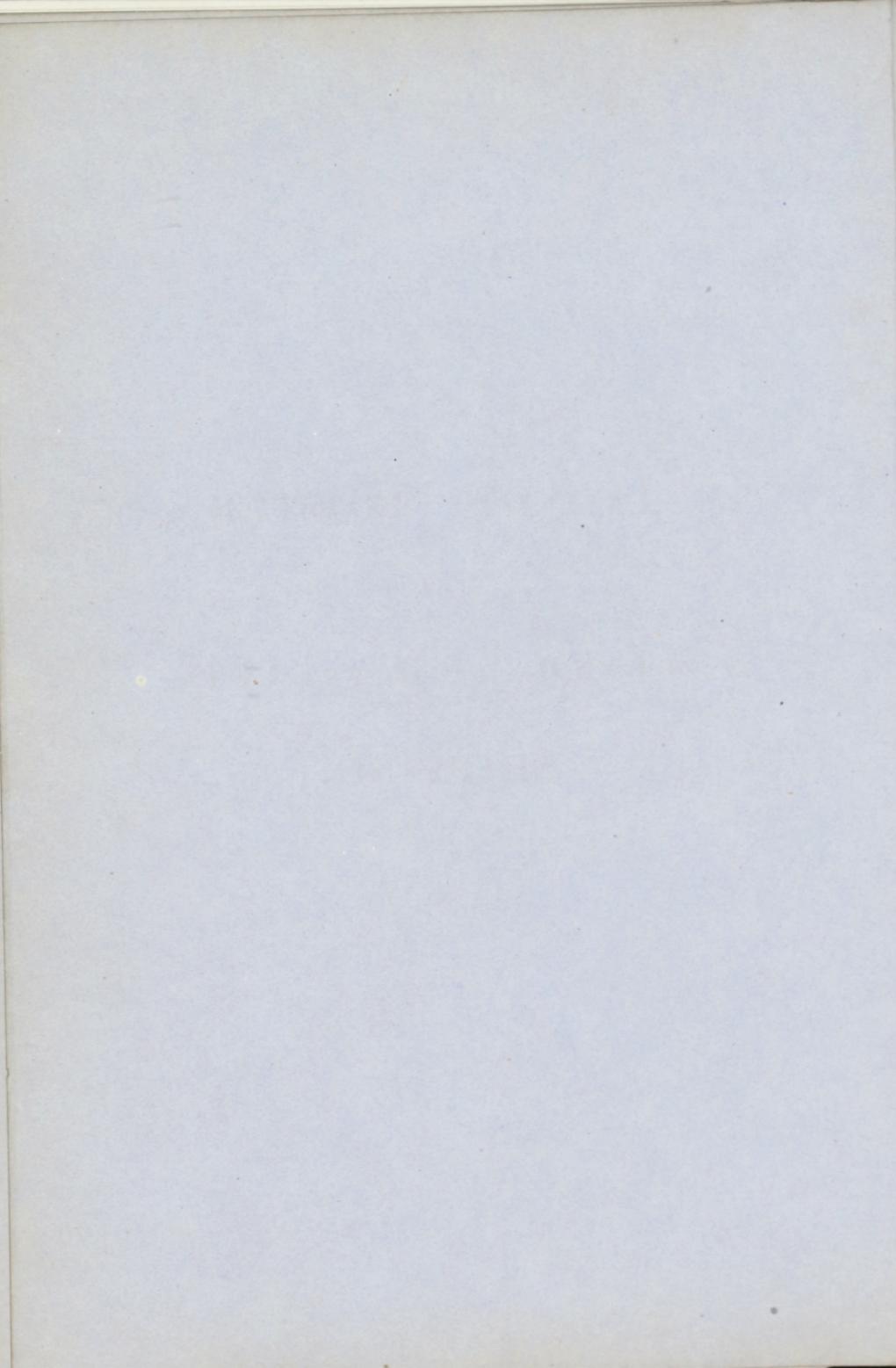












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OF

BRITISH AND FOREIGN

SHIPPING.

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1857.

PLATE 20

ANALYSIS OF THE
COPPER-IRON ALLOY

APPENDIX

ANALYSIS OF THE COPPER-IRON ALLOY

ANALYSIS OF THE COPPER-IRON ALLOY

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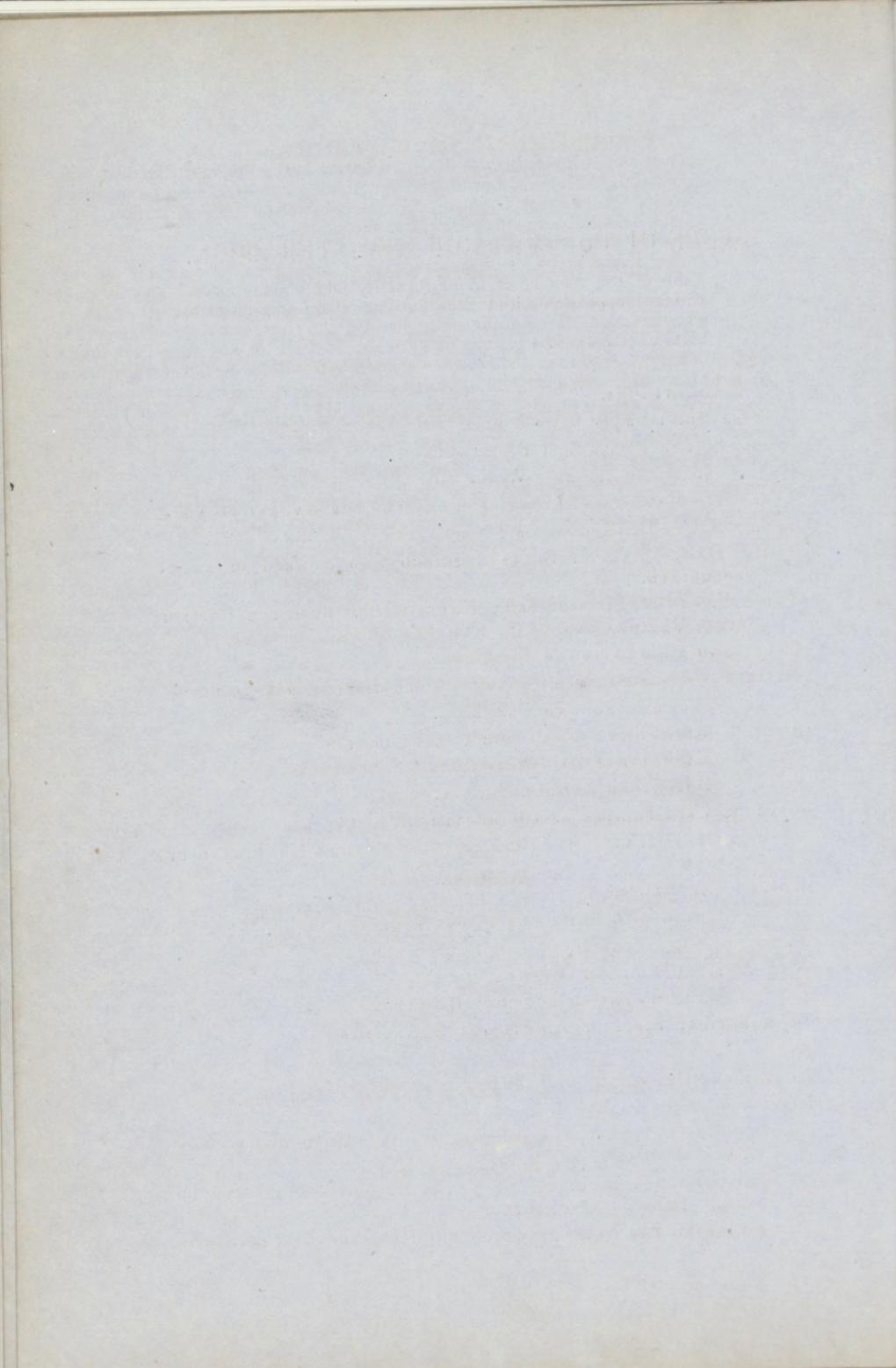
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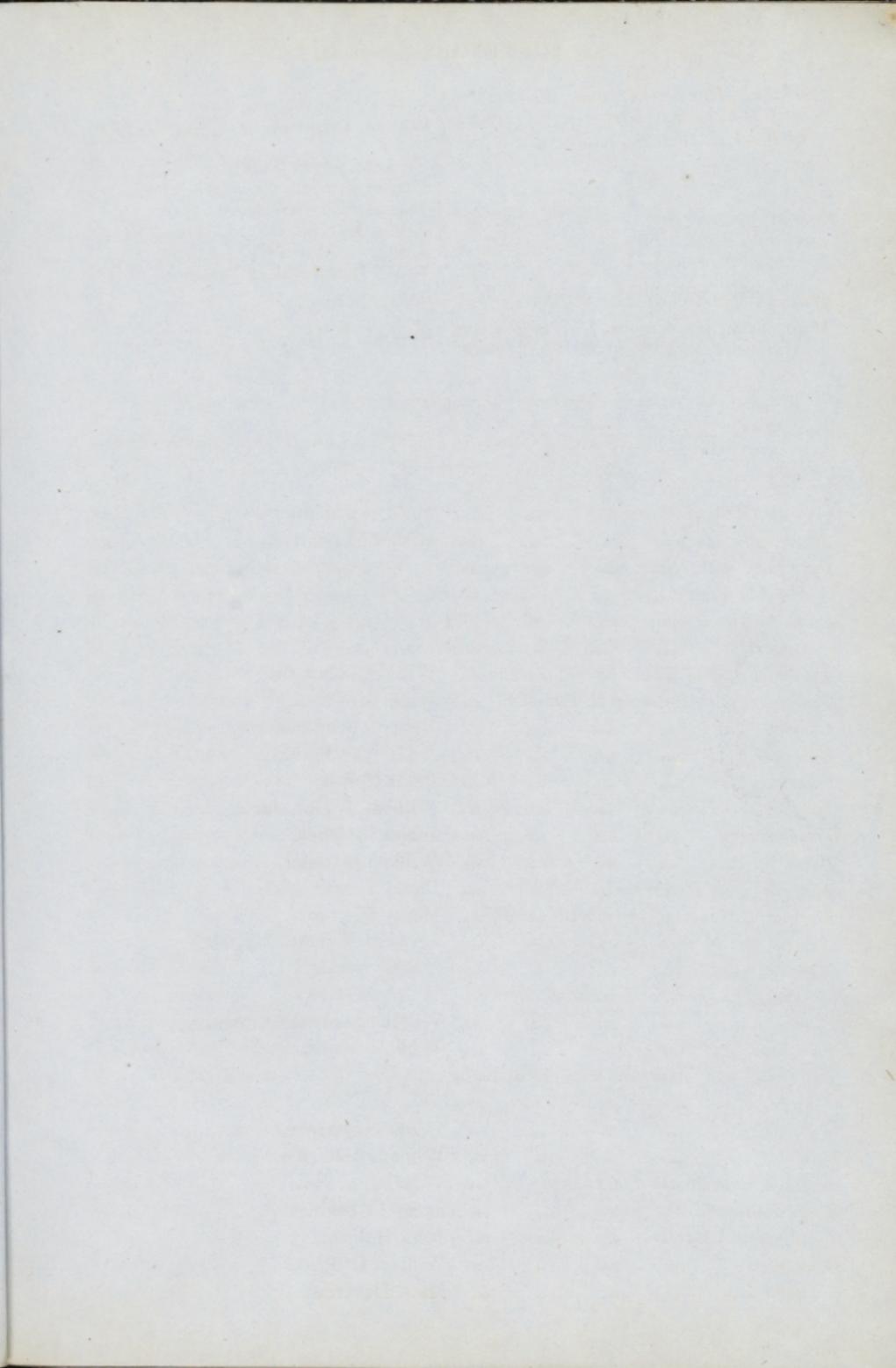
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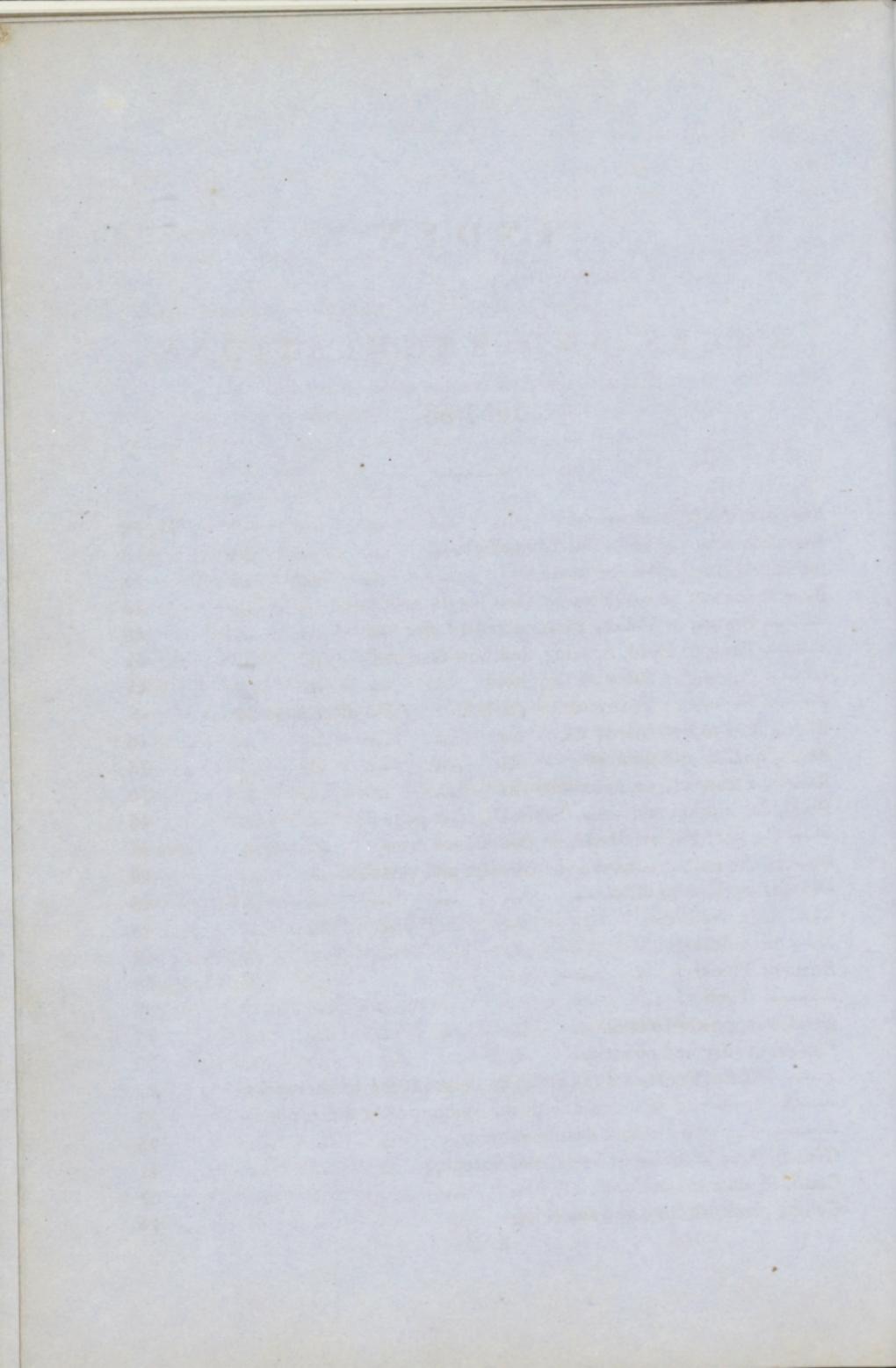
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<i>Cork, with Queenstown, Kinsale, and Limerick</i>		<i>George Wright.</i>
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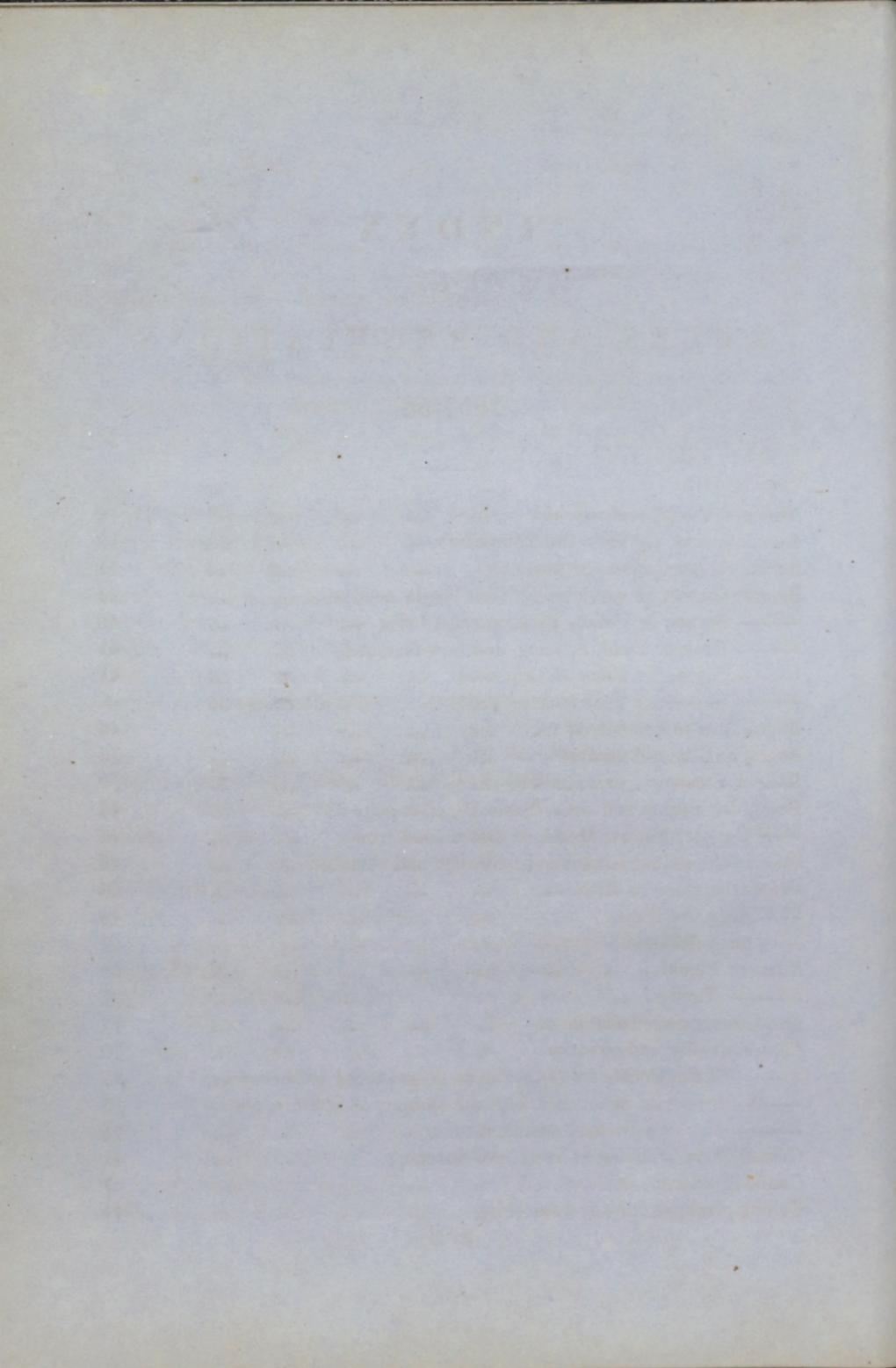
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Windlass, Materials for, see Table A,	<i>page</i> 30	—

LLOYD'S REGISTER

OF

BRITISH AND FOREIGN SHIPPING.

RULES AND REGULATIONS.

1. THE operations of the Societies of the two Register Books of Shipping formerly printed for the use of Merchants, Ship-Owners, and Underwriters, having ceased in the year 1834, this Society was then established for the purpose of obtaining a faithful and accurate Classification of the Mercantile Shipping of the United Kingdom, and of the Foreign Vessels trading thereto, and for the government of which the following Rules and Regulations have been from time to time adopted.

2. A Register Book to be printed annually for the use of Subscribers.
3. Each person subscribing the sum of Three Guineas per annum (or such other sum as the General Committee may fix), to be considered a Member of the Society, and entitled *for his own use* to one copy of the Register Book.
4. The subscription of Public Companies, or Public Establishments (not being engaged in Marine Insurance), to be Ten Guineas per Annum.
5. The subscription of Marine Insurance Companies to be regulated by the Committee on special application, in each case, but not to be less than Ten Guineas per Annum.
6. The Register Book to be periodically posted throughout the year.
7. For the convenience of Subscribers not resident in London, a Supplement, containing the additions to, and corrections made in, the Register Book, to be printed fortnightly in such convenient form, as to admit of its transmission by Post, so that such parties may be furnished, from time to time, with the latest and most complete information.
8. The superintendence of the affairs of the Society to be under the direction of a Committee in London, of twenty-four members, consisting

of an equal proportion of Merchants, Ship-Owners, and Underwriters. The Chairman for managing the affairs of Lloyd's, and the Chairman of the General Ship-Owners' Society, and also the Chairman and Deputy Chairman of the Liverpool Committee, and the Chairman of the Rotation Committees for the time being, to be, *ex officio*, Members of the Committee.

9. Six of the Members, namely, two of each of the constituent parts of the Committee, to go out annually by rotation, but to be eligible to be re-elected.

10. The vacancies so arising to be filled up by the election of two Underwriters and one Merchant by the Committee for managing the affairs of Lloyd's, and two Ship-Owners and one Merchant by the Committee of the General Ship-Owners' Society.

11. The Committee to appoint from their own body, annually, a Chairman and Deputy Chairman, and also a Chairman for a Sub-Committee of Classification.

12. The Committee to appoint a Sub-Committee of Classification, to be so regulated that each Member of the General Committee may, in rotation, take his turn of duty therein throughout the year.

13. The Secretary, Clerks, and Servants of the Society, and the Surveyors, to be appointed by, and be under the direction of the General Committee.

14. Special meetings to be convened by order of the Chairman, or Deputy Chairman, or on the requisition of any three members.

15. All elections and appointments to be made by ballot.

16. No Member of the Committee to be permitted to be present on the decision of the classification of any ship of which he is the owner, or wherein he is directly or indirectly interested.

17. The Committee to be empowered to make such By-laws for their own government and proceedings as they may deem requisite, not being inconsistent with the original Rules and Regulations under which the Society was established; but no new Rule or By-law to be introduced, nor any Rule or By-law altered, without special notice being given for that purpose at the meeting of the Committee next preceding that at which such Motion is intended to be made; such notice to be inserted in the summons convening the meeting. No new Rule, or alteration in any existing Rule, materially affecting the classification of ships, to take effect until the expiration of six months from the time it shall have been determined upon.

18. All Reports of survey to be made in writing by the Surveyors according to the forms prescribed, and submitted for the consideration of the General Committee, or of the Sub-Committee of Classification; but the

character assigned by the latter to be subject to confirmation by the General Committee.

19. The reports of the Surveyors, and all documents and proceedings relating to the classification of ships, to be carefully preserved, and parties proving themselves to be interested therein, to have access to the same under the direction of the Chairman or Deputy Chairman.

20. Foreign ships, and ships built in the British possessions abroad where there is not a Surveyor (*See also Section 51*), to be surveyed on their arrival at a port in the United Kingdom; but a due regard is to be had to the circumstance of their having been exempted from the supervision while building to which all British ships are subjected, and the character to be assigned to them is to be regulated according to their intrinsic quality, and from the best information the Committee can obtain.

21. In every case in which the Character assigned to a ship may be proposed, on survey, to be reduced, notice is to be given in writing to the Owner, Master, or Agent, with an intimation that if the reduction be objected to, the Committee will be ready to direct a special survey, on the Owner, Master, or Agent, agreeing to pay the expenses attending the same, provided on the said survey there shall appear sufficient ground for the proposed reduction.

22. When the Surveyors consider Repairs to be requisite, they are respectfully to communicate the same in writing to the Owner, Master, or Agent, and if such repairs be not entered upon within a reasonable time, a corresponding report is to be made to the Committee for their decision thereon.

23. Parties considering the repairs suggested by the Surveyor to be unnecessary or unreasonable, may appeal to the Committee, who will direct a special survey to be held; but should the opinion of the Surveyor be confirmed by the Committee, then the expense of such special survey is to be paid by the party appealing.

24. The Surveyors to the Society not to be permitted (without the especial sanction of the Committee), to receive any Fee, gratuity, or reward whatsoever for their own use or benefit, for any service performed by them in their capacity of Surveyors to this Society, on pain of immediate dismissal.

25. The Surveyors will be directed to attend on Special Surveys of ships under damage, or repairs for Restoration, when required by Merchants, Ship-Owners, or Underwriters; the charge for which is to be regulated according to the nature and extent of the service performed. In all cases, the application for the assistance of the Surveyors must be made in writing addressed to the Secretary.

FUNDS.

26. The Funds to be under the authority and control of the Committee, and a statement of the Receipts and Expenditure to be annually printed for the information of the subscribers.

27. The following Fees to be charged to the Owners of ships prior to their vessels being classed and registered in the book.

I.

For Entering and Classing Ships, and for Entering and Classing Ships surveyed for Continuation, or repaired for Restoration.

For each Ship ...	...	under 100 Tons	...	£1 0 0
Ditto	... of 100 Tons and under 200	—	...	2 0 0
Ditto	... 200 —	300	...	3 0 0
Ditto	... 300 —	400	...	4 0 0
Ditto	... 400 and upwards ...	...	...	5 0 0

II.

For Registering Repairs.

For each Ship ...	...	under 300 Tons	...	£0 10 0
Ditto	... of 300 Tons and under 500	—	...	1 0 0
Ditto	... 500 —	1000	...	2 0 0
Ditto	... 1000 and upwards ...	...	...	3 0 0

For Re-classing Ships (except when repaired) the Characters of which have been expunged, or change of Owners.

For each Ship ...	...	under 200 Tons	£0 10 0
Ditto		200 — and above	1 0 0

Special Surveys.

28. For Special Surveys, and where the Surveyors to the Society are required by the Owners to superintend the building of ships, or repairs for Restoration, or otherwise, a charge will be made according to the nature and extent of the service performed. In all such cases the authority of the Committee is required.

29. Certificates of Character, of the Form No. 7, signed by the Chairman of the General Committee, or by the Chairman of the Sub-Committee of Classification, and countersigned by the Secretary, will be granted on application; the charge for which will be as follows:—

For Ships under 200 Tons 2s. 6d. each
200 — and above 5s. each.

For Ships built under Special Survey, on their

First Classification Gratis.

30. Rules, each copy 2s. 6d.

CHARACTERS.

31. The Characters to be assigned to ships to be, as nearly as possible, a correct indication of their real and intrinsic qualities, and to be in all cases fixed (not by the Surveyors, but) by the Committee, after due consideration of the Reports of the Surveyors and such other documents as may be submitted to them, and will be distinguished as follows:—

SHIPS A

To consist of new ships, or ships Continued, or Restored. *Vide Sections 34, 54, 55, 57.*

SHIPS A, in Red,

To consist of ships which have passed the period assigned on the original survey, or Continuation, or Restoration; and also of ships not having had an original character, and which are found on survey of superior description, fit for the conveyance of dry and perishable goods, *to and from all parts of the world.* *Vide Section 60.*

SHIPS AE

To consist of ships which are found on survey fit for the safe conveyance of dry and perishable goods on *shorter voyages.* *Vide Section 61.*

SHIPS E

Will comprise ships which shall be found on Survey fit for the conveyance of cargoes not in their nature subject to sea damage *on any voyage.* *Vide Section 64.*

SHIPS I

To consist of ships fit to carry cargoes not liable to sea damage *on shorter voyages.* *Vide Section 66.*

32. In all cases in which the application of the rules must necessarily be regulated by the ship's admeasurement, the *gross register tonnage* is to be adopted.

RULES FOR CLASSIFICATION.

SHIPS A

33. Will consist of new ships and those which have not passed a prescribed age, provided they are kept in a state of complete repair and efficiency. The character A will not, however, be granted to any vessel, unless satisfactory evidence of the date of build and place where built is produced.

34. The number of years to be assigned for this Character to be determined with reference to the original construction and quality of the vessels, the materials employed, and the mode of building; and their continuance for the time so assigned to depend upon its being shown by occasional surveys (annually if practicable) that their efficiency is duly maintained. The characters of ships A will be struck out of the Register, unless re-surveyed within a period of four years from the *date of last survey*,—or, in the case of ships exceeding the eight years' grade, within *one-half of the time* assigned. After the expiration of the periods prescribed, ships will be permitted to Continue in the character A, or may be Restored thereto, for a further limited period, on complying with the conditions hereinafter prescribed in Sections 54, 55, and 57.

35. New ships are to be surveyed while building, by the Surveyors to this Society, in the following three stages of their progress, or they will be liable to lose one year of the period to which they might otherwise be entitled. (*See Section 53.*) Ships intended to be built under *special survey*, must be placed under the Surveyor's inspection from their commencement, so that all parts of the timbers, deadwood, keel, stem, &c., may be examined.

First..—When the Frame is completed, timbers dubbed fair inside and outside ready to receive planking, and before any planking is wrought.

Second..—When the Beams are put in, but before the Decks are laid, and with at least two strakes of the plank of the ceiling between the lower deck and the bilge unwrought, to admit of an examination of the inner surface of the plank of the bottom.

Third..—When completed, and before the plank be painted or payed.

All Ships for which a higher character than Ten Years' A may be claimed, must undergo a Survey by a Surveyor who is an exclusive Officer of the Society, twice at least, while building; namely, at the first and at the second stages of their progress as above prescribed. Due notice must be given by the Builder or Owner of their being ready for this additional survey.

36. A full statement, agreeably to Form No. 4, of the dimensions, scantlings, &c. of all new ships, verified by the builder, is to be transmitted by the Surveyor, and to be kept as a record in the office of the Society.

RULES TO BE OBSERVED IN BUILDING SHIPS.

37. The whole of the Timber to be of good quality, of the descriptions shown in Table A as applicable to the several terms of years for which ships so constructed may respectively be appointed to remain on the character A. The stem, stern post, beams, transoms, apron, knightheads, hawse timbers,

and keelson of ships claiming to stand *twelve years*, to be entirely free from all defects; the frame to be well squared and free from sap; every alternate set of timbers to be framed and bolted together to the gunwale. The butts of the timbers to be close, and not to be less in thickness than one-third of the entire moulding at that place, and to be well chocked with a butt at each end of the chock. In all cases in which the heads and heels of the timbers shall be *square*, in vessels intended for the twelve years' grade, a dowel (to be in diameter from one-fourth to one-third of the moulding of the timber) must be introduced into the ends of such timbers in order to connect them together. In the construction of top-gallant forecastles, and poops, the timbers must be of the same materials as are required by the Rules (Table A) for the top-timbers of the frames of ships according to the several terms of years appointed for such ships to remain on the character A, all the said timbers to extend to the planksheer. All the outside planking of top-gallant forecastle, and the sheerstrakes, planksheers, and spirketting of top-gallant forecastles and poops must be of the materials required by the Rules (Table A) for the topsides of the said ship; and the shelf and clamps of poops and top-gallant forecastle may be of the same quality as those allowed in Table A for the shelf and clamp of the upper deck. All the beams of top-gallant forecastle, and the mast beams, breast beams, and transom beams of poop, to be of the materials required by the Rules (Table A) for the beams of the said ships; the remainder of the beams and the water-way of the poop, and the remainder of the planking of poop and top-gallant forecastle may be of cedar, mahogany, Baltic or American red pine, pitch pine, larch, hackmatack, tamarac, or cowdie, and rock elm for such remainder of beams only, and yellow pine or American white spruce in ships below the seven years' grade.

This Rule does not apply to raised quarter decks, the materials of which are required to be of the same quality as those named in the Table for the main body of the ship.*

38. The Scantlings of the timbers, keelson and keel, thickness of planking, &c. are not to be less than those shown in Table B., following page 30.

In the inside and outside planking, waterways, planksheers, and flat of deck of full poops and top-gallant forecastles, a reduction of *one-fourth* from the thickness required by the Table B for such planks in the range of the upper deck in ships with two decks, will be allowed; and in the siding

* Whenever materials or fastenings beyond those required by the rules are introduced into a ship building for classification, they must be in conformity with the rules for the grade which may be contemplated, as regards size, material, and method of securing.

and moulding of the top timbers and beams of full poops and top-gallant forecastles, a reduction of *one-fifth* will be allowed.

In the inside and outside planking, waterways, plankshears, and flat of deck of raised quarter decks, a reduction of *one-fifth* from the thickness required by the Table B for such parts in the range of the upper deck in ships with two decks, will be allowed.

39. The intermediate dimensions for the scantling of timbers between the floor heads and the gunwale to be regulated in proportion to the distance from the two points. Should the room and space be increased, the siding of the timbers to be increased in proportion. Whenever ships are built with double floors, *thick strakes* (see Table B) *must be worked inside, to extend from the lower part of the short floor head chocks to the upper part of the long floor head chocks*, and be well bolted through and clenched.

All ships, the length of which, measured from the fore part of the stem to the after part of the stern-post on the range of the upper deck aloft, shall exceed five times their extreme breadth, shall have diagonal iron plates fitted outside or inside the frame, to extend from the upper deck clamp to the first foot-hooks, and be not less than 4 inches broad, and $\frac{5}{8}$ inch thick, and be bolted with $\frac{7}{8}$ inch bolts through *each frame* if fitted on the *outside*, and through *each timber* if fitted on the *inside* of the frame: the number of the plates to be in the proportion of not less than one pair to every twelve feet of the ship's entire length. And in all such ships of 1,000 tons and upwards, the iron plates to be not less than 5 inches broad and $\frac{3}{4}$ inch thick, bolted as above with 1 inch bolts.

In all such ships, likewise, the shifts of the planking must not be less than 6 feet, unless there be a stake wrought between them, and then a distance of 5 feet will be allowed.

40. The sizes of the deck and hold Beams have been regulated so as to be determined by the length of the beams *amidships*, as shewn in Table C., following page 30. The beams will be required to be of the size of the midship beam, except those at the *after end* of the ship, which may be reduced in proportion to their length. If beams of spruce or yellow pine are used, the siding of such beams shall be one-fourth larger than is prescribed by the above Table, or be increased each way, siding and moulding, equal in area to that amount.

41. The Beams of all Decks to be sufficient in number and size, and securely fastened to the sides either with lodging knees of iron or wood, or with a shelf piece and waterway,* or with a shelf-piece and knees, or with some other

* When the transverse sectional area of the shelf-pieces and waterways are each equal in contents to the transverse sectional area of the beams of their respective decks at their ends, as given in

security equal thereto, so as sufficiently to connect the ends of the beams to the sides of the ship : and, in addition, all ships of 150 tons and above to have vertical knees to the DECK beams ; and those of 200 tons and above to have vertical knees to the HOLD beams, in number as shewn in Table E., following page 30. Vessels of 13 feet, and under 15 feet hold, the spacing of the hold beams not to exceed 8 feet apart, and the deck beams 4 feet :—Vessels of 15 feet and under 18 feet hold, the spacing not to exceed 8 feet and 4 feet apart alternately, or in that proportion ; the deck beams to be placed one over every hold beam, and one in all double spaces :—Vessels of 18 feet hold and above, the spacing of the beams not to exceed 4 feet 6 inches ; the deck beams to be one over every hold beam. The depth in all such cases to be determined by taking the measure from the top of the limber-strake (the thickness of which, for measurement to be taken as prescribed in Table B), to the top of the upper deck beams. Ships having a depth of hold, measured from the limber-strake to the under side of the lower deck beam, *above* 13 feet but not exceeding 15 feet, must be secured with iron riders of the sizes and be fastened as shewn in Table F., and in number not less than one on every fourth floor, on each side, from fore side of fore-mast to aft side of mizen-mast, to extend from the lower deck beams downwards so as to receive not less than two bolts in a substantial part of the floors ; or by *orlop beams*, sufficient in number and properly secured. All ships having two decks, (viz. upper and lower deck,) and exceeding 23 feet in depth from the top of the limber-strake to the top of the upper deck beams, or having three decks (viz. upper, middle, and lower deck) and exceeding 23 feet in depth from the under side of the MIDDLE DECK, to have orlop beams, the number to be in no case less than one half the number of lower deck beams in the space between the foremast and the mizen-mast. The application of this Rule to British North American built Ships and Fir Ships will not exempt them from the full operation of the Rule, Section 62. All dimensions, fastenings, and bolts of the middle deck in Vessels having three decks, (viz. upper, middle, and lower deck,) to be the same as those prescribed in the Tables for the upper deck of ships having only two decks ; and a reduction of one-sixth from the dimensions, fastenings, and bolts, prescribed in the Tables, for the upper deck of vessels having only two (viz. upper and lower deck), will be allowed in the third or upper deck, by some called a spar deck. The middle deck to be a perfect deck laid and caulked. *The united lengths of poop and*

Table C, and the beams are either dowelled or dovetailed to their shelf-pieces and waterways, and the shelves and waterways are properly scarped and through bolted, having also a hanging knee to the lower side of every beam end, then lodging-knees may be dispensed with, except in the mast-rooms. In Ships of 500 tons and under, where lodging knees properly bolted are applied, the ordinary plank clamps may be used, but the through bolting of them cannot be dispensed with.

forecastle not to exceed three-fifths of the entire length of the upper deck. All timbers of the frame including poop and forecastle to extend to the extreme height. Every ship exceeding 150 tons to have at least one crutch for the security of the heels of the after-timbers of the frame; one pair of pointers in addition to a knee at each end of the wing transom to connect the stern frame with the after-body of the ship; and a transom over the heels of the stern timbers properly kneed. The heels of the cant timbers forward and aft to be stepped into or on the deadwood, and bolted through.

42. Shifts of timber in ships of 200 tons and upwards, to be not less than one-seventh of the main breadth; and in ships under 200 tons, to be not less than one-sixth of the main breadth.

PLANK.

43. The outside planking to be of good quality, of the description prescribed in Table A, and to be clear of sap and free from all defects.

44. The inside planking to be of the description shown in Table A, and free from all foxy, druxy, or decayed planks. With regard to the ceiling plank, and the efficiency of its fastening, it will be required that the planking shall be properly shifted and fastened so that there shall be at least either treenails or through bolts, or short bolts, in each plank of the ceiling *in every timber.*

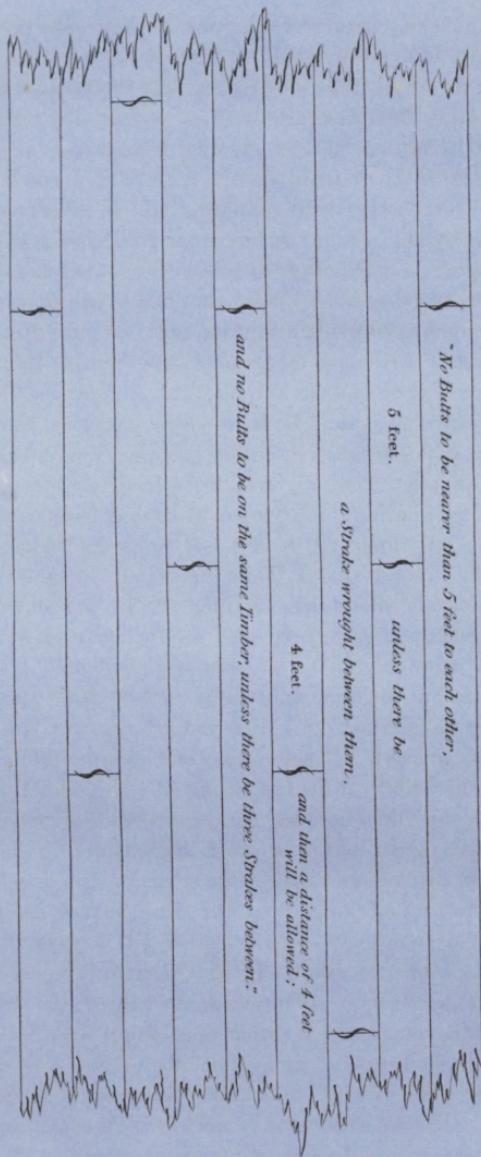
45. No butts to be nearer than five feet to each other (*see also Sec. 39*), unless there be a strake wrought between them, and then a distance of four feet will be allowed; and no butts to be on the same timber, unless there be three strakes between, as more particularly shown in the diagram annexed (*see Plate*), but vessels under 200 tons will be exempted from the full operation of this rule; and in ships of larger tonnage a literal compliance with it will be dispensed with in cases wherein it may be satisfactorily proved that the departure from the rule is only partial, being confined to the ends of the ship, or the planking of the topside, and does not injuriously affect the ship's general strength; but such relaxation will not be sanctioned unless an accurate description of the shifting of the plank be transmitted by the Surveyors, to enable the Committee to form a proper judgment on the case.

The thickness of the plank, according to the tonnage of the ship, is not in any instance to be less than is prescribed in Table B, following page 30.

FASTENINGS.

46. The Treenails to be of good quality, and of a description of wood EQUAL TO THE BEST MATERIAL through which they are to pass. They are to

SKETCH DESCRIPTIVE OF THE REQUIRED SHIFTING OF PLANK... Section 45.



The Sketch shows the principle on which the Butts should be arranged, so as to avoid Stepping, which is deemed bad Workmanship.

be circular, being either engine-turned, compressed, or planed. In all cases in which planks above twelve inches in width shall be used, they must be *double fastened*; and those above nine inches in width must be treenailed double and single, except bolts intervene; and if less than that width, then to be treenailed single; in each case at least one-half of the treenails must go through the ceiling. Every butt in each outside plank to be fastened with *two* bolts, one of which may be in the adjoining timber, and one to be through and clenched. The bilges to be secured with bolts so placed that from the foremast, extending a distance aft equal to three-fifths of the length of the keel, there shall, in ships under 300 tons, be at least one bolt through and clenched in each first foothook; and that in ships of 300 tons and upwards there shall be at least two bolts through and clenched for each set of timbers in one or other of the thick bilge strakes. All the bolts of the knees, breasthooks, crutches, riders, transoms, pointers, keelsons, shelf pieces, *waterways*, *heels of timbers against fore and after deadwood*, and of all other material fastenings, are to be driven through and clenched on rings of the same metal as the bolts. The up and down bolts in the knees to beams are not required to be through the deck, but whether clenched upon the beams, or upon the deck, they must be clenched on rings of the same metal as the bolts. The two bolts, the nearest to the crowns of the pintles and braces of the rudder are also to be through and clenched, those through the braces to be in the main piece of stern post. The limber strakes to be bolted down to the floors, and one bolt in every floor, on each side, to be through and clenched. When the heels of the first futtocks (either with full moulding or with *butted chocks*) meet at the middle line on the keel under the keelson, the through bolting of the limber strakes may be dispensed with. Ships in which the flat of upper deck, poop, and forecastle, are fastened with nails or bolts of Copper, Yellow Metal, or Galvanized Iron, and the whole outside planking of which is fastened with treenails and Copper or Yellow Metal Bolts, to the entire exclusion of Iron Bolts and Iron Nails, and in which no Iron Bolts are used in any part of the Vessel, except—the *frame Bolts*, the *short Bolts of inside planking*, and *short bolts in iron plates on frames*; *up and down Bolts of knees which clinch upon the beams of the upper deck, poop, or forecastle*, when the flat of deck is laid over them; *up and down Bolts of hold or lower deck beams*; *fore and aft Bolts in arms of knees to beams*; *Bolts of the coming*s, *windlass or bowsprit bits*; *deck fixtures*; *the upper bolt in knee of head, and athwartship Bolts in knee of head afore the stem*; *Bolts or fastenings incidental to the rigging*; or *any fastenings above the respective plankshears*

of poop, waist, and forecastle—will be allowed an additional period of one Year.

And, in addition thereto, a further period of one Year will be allowed to Ships so fastened, in which the outside planking above the floor heads is also fastened entirely with Bolts of Copper or Yellow Metal in lieu of Treenails.

In all such cases of substitution, the number of bolts must be the same as is already prescribed as above for treenails; the proportion of through bolts must be at least *one-half*;* and all the through bolts must be of malleable metal, and clenched on rings (of the same metal) inside. The sizes of the copper or mixed metal bolts must be as under, *viz.* :—

In ships of 150 tons and under 200 tons	...	...	...	...	in.
200 ditto	350	...	...	...	4 ¹⁵ / ₆₄ in.
350 ditto	500	...	...	...	1 ³ / ₁₆ in.
500 ditto	700	...	...	...	5 ¹⁵ / ₆₄ in.
700 ditto	900	...	...	...	1 ¹⁵ / ₆₄ in.
900 and above	...	...	...	...	1 in.

Smaller sizes must
not be used.

and the lengths of the short bolts not less than as follows, *viz.*—

When used in plank of $2\frac{1}{2}$ inches, to be 7 inches long

—	3 "	8 "
—	4 "	10 "
—	5 "	12 "

and so on in proportion for plank of other thicknesses. The sizes of the bolts required in the several parts must not be less than is shown in Table D, following page 30.

47. In every case where the butt and bilge Bolts are not through and clenched, One Year will be deducted from the period which would otherwise be assigned in the classification of the vessel.

48. The Scantlings and dimensions for all sized vessels to be proportionately regulated, agreeably to Table B, following page 30.

49. Ships surveyed while building, in which *all the materials required for a Twelve Years' Ship shall have been used*, and most of the other requisites for that grade fulfilled, but which, from partial deficiencies, may not appear to be in all respects entitled to the full period, although superior to the description of a Ten Years' ship, may be marked in the Book thus, 11 A; thereby denoting that they are to remain on that grade *Eleven Years*, provided they be kept in a state of efficient repair.

* Whenever *metal fastenings* are used in lieu of Treenails, this proportion must be observed.

50. Ships surveyed while building, in which the scantling and shifts of the timbers, the thickness and shifts of the planks, and size of fastenings may be the same as are required by the rules, and in which the chocks are wrought with a butt at each end, and the description of materials prescribed in the annexed Table A shall also have been used, but in which the *alternate* sets of timbers shall not have been framed, nor the frame so well squared as is required for Twelve Years' ships, but which shall be *in other respects* equal thereto, shall be marked "10 A;" thereby denoting that they are to remain on that grade for *Ten Years*, provided they be kept in a state of efficient repair.

51. In all other cases, ships surveyed while building, and constructed of the materials of good quality, hereinafter shown in Table A, will be allowed the several terms of years respectively appointed, provided they be kept in a state of efficient repair. All ships, *not built under Survey*, whether in the United Kingdom or abroad, for which a character may be claimed, must be placed in dry dock or laid on blocks in order that their bottoms may be seen and properly examined; they will also be required to have *their timbers completely exposed for examination, by a plank or listing AS THE SURVEYOR*, (who must be an exclusive officer of the Society), *MAY DIRECT, being taken out, either inside or outside, all fore and aft, on both sides, equal to one entire strake*, at the first foothook heads, and another between decks; *and a few treenails must likewise be driven out*, so that the Surveyors, from actual inspection, may be satisfied whether or not they are of the quality and make prescribed by the Rules; and the same being thus ascertained, shall be reported to the Committee, and a character assigned. If the ship be 400 tons and upwards, the Survey must be made by two Surveyors, and their report signed accordingly.

52. Ships built under a substantial and efficient Roof, kept in good repair, *which shall project at each end beyond the length, and on each side beyond the breadth, a quantity equal to half the breadth of the vessel*, shall have one year added to the period prescribed, provided they shall have been surveyed whilst building, and shall have occupied a period of not less than twelve months in their construction, *and not less than nine months (as part thereof) after the Frames shall have been completed*.

53. Ships built in the United Kingdom;—or in Quebec after 1851;—or St. John, New Brunswick after 1853;—or Miramichi, and Northern Ports of New Brunswick, or in Prince Edward Island after 1855;—and *not surveyed while building* by the Surveyors to this Society, and all ships, the owners or builders of which may have refused or declined to permit them to be

surveyed at the several periods prescribed by the Rules, will have One Year deducted from the period which would otherwise have been assigned, in consequence of their not having been submitted to survey during their construction. In no case, however, will a higher grade than 10 A be assigned to ships built in the United Kingdom, which shall not have been surveyed while building.

CONTINUATION OF SHIPS A.

54. If, on the termination of the period of original designation, or if at any subsequent period not exceeding one-third of the number of Years assigned originally, or on Restoration, an Owner should wish to have his ship remain, or be replaced on the letter A (*vide section 59*), he is to send a written notice thereof to the Secretary, and the Committee shall then direct a Special Survey as follows to be held by not less than *two* competent persons to be appointed by the Committee, one of them to be a Surveyor the exclusive servant of the Society:—

SURVEY.

For the purpose of facilitating such survey, the ship shall be either placed in dry dock or laid on blocks, so that the keel may be examined, and be scraped from the light water-mark upwards, including the plank-sheer and waterways, so as to expose the surface of the plank to view.* The hold to be cleared and proper stages made. The attention of the Surveyors shall then be particularly directed to the state of the upper or main deck and comings, the upper and lower deck bolts, and the outside planks through which they pass, the planksheers, waterways, and beams, so far as they can be examined; the hawse timbers, knight-heads, breasthooks, and transoms; the floors and keelsons; the keel and rudder; the planking outside, and the treenails passing through from the light water-mark upwards; the ceiling inside, and the frame and inner surface of the outside planking where it may be seen; and the sheer and general form of the ship; and should any suspicious treenails or bolts appear, the same are to be driven out for inspection. The Surveyors on these points shall transmit to the Committee a detailed report, accompanied by such observations as may

* If the Ship has been sheathed with wood over felt, fastened with copper or mixed metal nails, within a period of five years, or with only metal sheathing within a period of two years, and the plank from the light water-mark upwards shall, when so sheathed, have been brightened, and the condition of the bolts, planking, treenails, and caulking ascertained, and favourably reported upon by the surveyors; and provided that the sheathing which covers the binding bolts and raft ports, and a strake of sheathing all fore and aft on each side under the wales be removed, and listings of sheathing cut out at hood ends; and the planking, fastenings, and caulking so exposed, shall prove to be in good condition, then, on application to the Committee, the stripping from the light water-mark upwards may be dispensed with; but whenever the sheathing is removed, the outside planking is to be scraped or dubbed bright, and examined as prescribed by the above rule.

occur to them, from inspection of the ship, or from information of the repairs she may have received. If from the report of such special survey the ship shall appear to be in a sound and efficient state, and to have preserved her original form unaltered, the Committee shall continue such ship on the letter A for such further period as they may think fit, not exceeding, however, one-third of the number of years which had been originally assigned. Ships so Continued shall be distinguished in the Register Book by the number of years for which the character is extended, being inserted separately under the number assigned on the original character, thereby denoting that the ship has been found on survey in such good and efficient order as to entitle her to be Continued for years. Ships built in the Colonies which shall have had the character A for four years, will be allowed a Continuation for *Two Years*, provided that, in addition to the above requisitions, and those prescribed by section 63, the Owners shall agree to a *strike in the Topsides, fore and aft*, on both sides, being also removed, and the ships, specially surveyed in that state, shall be found to be in a sound and efficient condition. The period assigned for Continuation will, upon all occasions, commence from the time the ship may have gone off the letter A, without regard to the date when the survey for this purpose may have been held.

In cases of the repair of ships for Continuation of character under the Rules, section 54, (*but in no other*) materials of an inferior description (but not below those prescribed for the six years' grade) may be permitted to be used in those parts which must of necessity, under the operation of the Rules, section 56, be *entirely removed* on a repair for Restoration; subject, however, to the ship-owner, in every instance, making a special application to the Committee for their previous sanction.

RESTORATION OF SHIPS TO THE CHARACTER A.

FIRST RULE.

55. If, at any time before the expiration of two-thirds of the number of years *beyond* the period originally assigned, an owner be desirous to have his ship Restored to the A character, such Restoration (on his consenting to the special survey hereinafter described, to be held by two Surveyors, and performing the repairs found requisite) will be granted for a period not exceeding two-thirds of the time originally assigned, the same to be calculated from the date of such repairs.

Requisites for Restoration.

56. All the bolts in the range of each deck to be driven out, and the

planks taken out; the upper deck waterways, and planksheers and spirketting, and the strake next the waterways on the lower deck in the midships, to be taken out; the sheathing to be entirely stripped off the bottom; *all the outside planking from the light water-mark upwards, to be scraped bright*; a strake in the upper course of the bottom, between the wales and the light water-mark fore and aft, and a plank in the ceiling at the floor heads on each side, to be taken out, the limbers to be clear, and the hooks forward to be exposed; and in that state the ship to be submitted to a special survey and examination, at which the attention of the Surveyors appointed by this Society is to be particularly directed to the state of the decks, the remaining plank of the topsides, the wales, upper courses, and treenails, and other fastenings; also to the state of the frame, hawse timbers, and knightheads, keelson, floors, foothooks, ceiling, and breasthooks, the rudder in all its parts and hangings; and if, after such examination, the Owner should consent to take out all planks, timbers, beams, knees, waterways, fastenings, and other parts that may be found defective, or objected to, and replace them with materials of the same species, or of equal quality with those of which the ship was originally constructed, such ships to be entitled to Restoration for a period proportionate to their real condition and the extent of the repairs performed; or if timber of an inferior description, or second-hand English or African Oak or Teak be used, then for a period not exceeding that for which such materials would have entitled a new ship to stand A according to the tables, subject in either case to the ship being at all times thereafter kept in a state of efficient repair.

SECOND RULE.

57. If, *at any age* of a vessel, an Owner be desirous to have his ship Restored, such Restoration (on his consenting to the special survey herein-after described, to be held by two Surveyors, and performing the repairs thereby found requisite) will be granted for so long a period as may be deemed expedient by the Committee, not exceeding, in any case, the term of eight years.

Requisites for Restoration.

58. The whole of the outside plank of the vessel to be taken off as low as the second foothook heads, and the remainder of the planking, either outside or inside, together with all the decks, to be removed, *so as to expose the timbers of the frame entirely to view*, and in that state the ship to be submitted to a special survey and examination, by the Surveyors appointed by this Society; and if, after such examination all timbers, beams, knees, keel-

sons, transoms, breasthooks, remaining plank, inside or outside, or other parts found to be defective, be replaced with materials of the same species, or of equal quality with those of which the ship was originally constructed, and all the treenails driven out and renewed, such ship may be Restored. But if timber of an inferior description, or second-hand English or African Oak or Teak be used, then for a period not exceeding that for which such materials would have entitled a new ship to stand A according to the tables, subject, in either case, to the ship being at all times thereafter kept in a state of efficient repair.

59. Ships which have been *Restored* shall be entitled to Continuation, subject to the same conditions of survey and examination as are prescribed for ships proposed to be Continued at the expiration of the period first assigned to them (Sec. 54); but in like manner, the term of such extended Continuance shall be limited to a period not exceeding one-third of the number of years for which the ships may respectively have been *Restored*, without any reference whatever to the period originally assigned to them. At the termination of the several periods assigned to ships for remaining on the character A, they will have the character A struck through, and the word '*lapsed*' inserted against them; and if not surveyed prior to the re-printing of the Register Book, they will appear without any character. But if during the *last year* of the period assigned to them, the Owners of a ship shall, in consequence of her being about to proceed on a distant foreign voyage, apply to have her surveyed for continuation on the letter A, or for the character A in red, a special survey shall be held conformably to the Rules, sections 54 or 60, as the case may be: and if from the report of such special survey, the ship shall appear to be in all respects in a sound and efficient state, such as is required by those Rules, the Committee shall, from the period at which the ship's character would terminate, continue her on the letter A, or assign to her the character A 1 in red in accordance with the Rules referred to.

SHIPS A, IN RED.

60. Ships that have passed the periods which have or might have been assigned to them for the character A originally, or on Continuation, or for Restoration, and shall be found on survey to be of a superior description, being fit for the safe conveyance of dry and perishable goods to and from all parts of the world, shall be classed A in Red, as the Second description of the First class. Those ships, however, the original construction of which,

by their timber materials, may not have entitled them to the A character for a longer period than Five Years, will not be eligible for this character.

In all cases in which the owner may claim this character, the ship must undergo a special survey by two surveyors, (to be appointed in every instance by the Committee), one of whom shall be an exclusive officer of the Society, and be subject in other respects to a compliance with the undermentioned requisitions of Survey, viz.:—The ship to be either placed in dry dock or laid on blocks, so that the keel may be examined, and be scraped or dubbed bright from the light water-mark upwards, including the plankshears and waterways, so as to expose the surface of the plank to view.* Iron bolts in number not less in any case than six on each side, in each range of the deck fastenings to be driven out in ships of 500 tons and under, and increased in number in proportion to the size of the ship, and one treenail to be driven out in every alternate frame or fourth timber between the upper edge of the wales and plankshears, and one in every alternate frame or fourth timber between the upper edge of the wales and the light water-mark, and such other parts of the bottom as the surveyors may direct, so as to enable a judgment to be formed as to the general state of the frame, treenails, and inside of the planking. The hold to be cleared, and proper stages made both inside and outside. The attention of the surveyors shall then be particularly directed to the state of the upper or main deck and coming, the upper and lower deck bolts, and the outside planks through which they pass, the plankshears, waterways, and beams, so far as they can be examined; the hawse timbers, knightheads, breasthooks, and transoms; the floors and keelsons; the keel, rudder, and windlass; the planking outside and inside, and the treenails; and the frame and inner surface of the outside planking, where they can be seen; and the sheer and general form of the ship; the condition of the oakum and caulking also to be ascertained, and the ship to be efficiently repaired with suitable materials as hereinafter stated.

But when a period of two-thirds of the number of years beyond that originally assigned for a vessel's retaining the A character, or if a period of two-thirds the number of years beyond that assigned on Restoration has elapsed, an owner be desirous to have his ship retain, or be placed upon, this character, application must be made to the Committee in writing, who

* If the ship has been sheathed with wood over felt, fastened with copper or mixed metal nails, within a period of five years, or with only metal sheathing within a period of two years, and the plank from the light water-mark upwards shall, when so sheathed, have been brightened, and the condition of the bolts, planking, treenails, and caulking ascertained, and favourably reported upon by the surveyors; and provided that the sheathing which covers the binding bolts and raft ports, and a stave of sheathing all fore and aft on each side under the wales be removed, and listings of sheathing cut out at hood ends; and the planking, fastenings, and caulking so exposed shall prove to be in good condition, then, on application to the Committee, the stripping from the light water-mark upwards may be dispensed with; but whenever the sheathing is removed, the outside planking is to be scraped or dubbed bright, and examined as prescribed by the above rule.

will direct the survey to be made by two surveyors, one of whom shall be an exclusive officer of the Society; and for the purpose of holding such survey, the ship must be placed in dry dock, or laid on blocks upon ways, so that the keel may be examined; all sheathing to be entirely stripped off the bottom and elsewhere; all the outside planking from light water-mark upwards, including the plankshears and waterways, to be scraped or dubbed bright;* the timbers of the frame to be exposed to view by the removal of planking equal to one strake fore and aft, on each side, above the wales, either inside or outside at the discretion of the surveyor; a short plank in each buttock; a plank or listing of sufficient breadth, on each side, at the discretion of the surveyor, in the ceiling above the floor heads in midships (or, if the ship-owner should prefer it, a plank outside at the same height), and a reasonable number of treenails before and abaft the same, so as to ascertain the state of the lower timbers of the frame; and in order to ascertain the condition of the beam ends, either a strake of deck next the waterways on each side to be taken out, or an examination be made by boring, at the option of the ship-owner; iron bolts and treenails to be driven out at the various parts as prescribed above;† proper stages to be made both inside and outside; and when in the state above described, the special survey to be held as above directed upon all the parts exposed to view; the condition of the oakum and caulking to be ascertained; the ship to be efficiently repaired with suitable materials, as hereinafter stated. And to entitle them to continue this character, such vessels will be required, in addition to the usual annual survey, to undergo a special re-survey, as prescribed above, within a period (from the date of the last special re-survey), not exceeding *two-thirds* of the several terms of years originally assigned to them, or earlier, if, in the judgment of the Surveyors, upon a careful examination of the ship, the same shall appear to them to be necessary.

In the repair of vessels for the above character, no materials may be used of a description inferior to those allowed in new Ships for the Six Years' grade.

Whenever it shall appear to the surveyors that a vessel classed A in Red shall no longer be in a condition to deserve that character, notice of the proposal to reduce her shall be given in writing to the Owner, Master, or Agent, in the same manner as is prescribed by the rules, section 21, page 7.

N.B. After the 1st October, 1857, no ship will be surveyed for the red \mathbb{A} asterisk character, but ships at present classed with this character will be allowed to retain the same, subject to annual Survey, until the expiration of the period for which they have already been specially Surveyed.

* See note preceding page.

† In the case of doubled ships, or ships of peculiar construction, special application may be made to the Committee.

SHIPS \ae .

61. Ships that have passed the prescribed age for the A Character, but have not undergone the repairs which would have entitled them to be Continued or Restored; or having been Continued or Restored, and the additional period thus assigned expired, and also such ships as have never had an original character, which shall be found on survey fit for the conveyance of dry and perishable goods on *shorter voyages*, shall be distinguished by the diphthong \ae ; and a careful survey will be required to be made *annually*, or on the return of the ship from every foreign voyage, by one of the Surveyors to this Society, who is to state distinctly and separately the actual condition of the *upper deck fastenings, waterways, spirketting, plankshears, topsides, upper deck with its appendages, lower deck fastenings, wales, counter, plank, and treenails outside to the water's edge, rudder, windlass and capstan, beams, breasthooks, transoms, and timbers*; but if not surveyed within twelve months, such ship having been during that time in some port in the United Kingdom, the character will be omitted until such survey be held; or, as the case may be, she will be allowed to pass into the class E.

62. Ships built in the British North-American Colonies, and all ships wherever built, the frames of which are composed of *Fir*, of 400 tons and above, shall, in order to entitle them to be classed in the Register Book of the Society, be secured in their bilges by the application of iron knee riders, or hanging knees and riders to cover the joints of the floor and foothook heads, to extend from the height of the hold beams to the floors so as to receive not less than two bolts in a substantial part of the floors; the number of iron knees and riders to be not less than one of each to every hold or lower deck beam on each side. The knees to be connected with the riders or not, at the option or convenience of the owners; but if not so connected, the side arms of the knees are to be of the length and to be fastened as prescribed in Table F. The number of knees to each deck, and of riders, also their dimensions, and number of bolts, are fully explained in Table F. All ships built in the Colonies will be considered as "iron fastened" in their centre lines, unless it shall be satisfactorily shown to the contrary, either by the exposure of some of the bolts, or by a certificate to be produced from the builders.

On and after the 1st January, 1858, ships which proceed to sea *without being fastened with the iron knees and riders prescribed by the rules, will*

have one year deducted from the period to which they would otherwise be entitled to be classed in the Register Book.

Ships built in the British North American Colonies, and all ships the frames of which are composed of Fir, of 600 tons to 1,000 tons, and *all ships (wherever built)* the length of which, measured from the fore part of the stem to the after part of the stern-post on the range of the upper deck aloft, shall exceed five times their extreme breadth, shall have diagonal iron plates fitted outside or inside the frame, to extend from the upper deck clamp to the first foothooks, and be not less than 4 inches broad, and $\frac{5}{8}$ inch thick, and be bolted with $\frac{7}{8}$ inch bolts through *each frame* if fitted on the *outside*, and through *each timber* if fitted on the *inside* of the frame: the number of the plates to be in the proportion of not less than one pair to every twelve feet of the ship's entire length. And in all such ships of 1,000 tons and upwards, the iron plates to be not less than 5 inches broad and $\frac{3}{4}$ inch thick, bolted as above with 1 inch bolts. In all such ships, likewise, the shifts of the planking must not be less than 6 feet, unless there be a stave wrought between them, and then a distance of 5 feet will be allowed.

63. All British North-American built ships, which have gone, or may go off the List of Ships of the A character, or which may be of an age exceeding the period for which they might have had claims to be put upon that grade (whether classed or not), shall, as from time to time they come under examination, be subjected to a careful survey, to be made by one of the Surveyors to this Society;—and no further character shall be assigned them unless a survey shall be held as follows; and planking, either inside or outside, at the discretion of the Surveyors, in quantity equal to *one entire stave* fore and aft on both sides, shall be removed; to be taken out in midships immediately above the turn of the bilge, and *at such height* forward and aft as may, in their judgment, best expose the timbers of the frame to view; that a special report of the state of these timbers, and of the general state and condition of the upper deck fastenings, waterways, spirketting, plankshears, topsides, upper deck with its appendages, lower deck fastenings, wales, counter, plank and treenails outside to the water's edge, rudder, windlass and capstan, beams and breasthooks, shall be transmitted by the Surveyors to the Committee; and on the receipt of such report the character shall be assigned. If the AE character be then assigned, it shall be continued (subject to an annual survey) for a period not exceeding the number of years originally assigned; at the expiration of which the character will be discontinued, unless a similar survey and examination of the frame be again submitted to.

SHIPS E

64. Will comprise all ships which shall be found on survey fit for the conveyance of cargoes not in their nature subject to sea damage *on any voyage.*

65. Subject to occasional inspection, at least once in every two years, ships will continue in this class so long as their condition shall, in the opinion of the Committee, entitle them thereto.

SHIPS I

66. Will comprise ships which shall be found on survey fit for the conveyance, *on shorter voyages* (not out of Europe), of cargoes in their nature not subject to sea-damage.

67. The Bottom of every ship is to be CAULKED* once in every five years, unless wood-sheathed and felted, and then once in every seven years, except in the case of *Teak-built ships*, upon which a special survey may have been requested, and the Surveyors having ascertained, by the removal of a strake of sheathing fore and aft under the wales, and a strake at the first foothook heads, and by causing listings to be cut out at the wood's ends, that such caulking is not required, the same may then be dispensed with. If any ship shall be stripped within the periods above mentioned, her bottom is to be caulked, *if necessary.*

68. In all cases in which ships may be doubled, doubling of not less than the thicknesses hereinafter mentioned will be required, the same to be properly wrought and fastened as follows: in every instance the doubling is to be at least single fastened either with treenails or with bolts, and a through bolt in every butt. If treenails be used, every treenail must, if practicable, be a through fastening; and if bolts be used, then one-sixth of them from the lower part of the bilge upwards must be through and clenched on the ceiling in addition to the butt bolts. In all cases of doubling, the rudder braces are to be removed.

The throat bolts of iron knees, and the bolts of iron hooks, crutches, and pointers, must be renewed through the doubling.

* In cases where ships have been doubled with doubling of less thickness than is required by, or not fastened in accordance with, the rules, it will not be imperative that such doubling be stripped at the expiration of seven years as required for ordinary sheathing; but if, upon survey, the doubling be found in good condition, the period for its remaining on may be extended, with the sanction of the Committee, to a term not exceeding ten years, provided the doubling below the wales be copper or yellow metal fastened or treenailed.

The thickness of the doubling for the wales and bottom, on ships

Under 400 tons to be not less than	... 2 inches
of 400 " and under 600 tons	... 2½ "
of 600 " and above	... 3 "

On the Topsides of ships not exceeding 300 tons, the thickness may be $1\frac{1}{2}$ inches.

Where ships are *diagonally* doubled, the thickness of the materials for *wales and bottom* may be $\frac{1}{2}$ an inch less than prescribed above, but in no case to be less than two inches thick.

No ship hereafter doubled, shall be entitled to the character A in red, or any higher class, unless it shall be ascertained at the time of doubling that the frame is capable of securely retaining the fastenings.

IRON-FASTENED SHIPS.

69. All ships although iron-fastened (except as hereinafter mentioned) shall be classed in the same manner as copper-fastened ships, so long as they remain unsheathed with copper, provided they are, in all other respects, constructed in accordance with the Rules; but when sheathed with copper over the iron fastenings, the words "Coppered over Iron Bolts" shall be added to the character in the Register Book, and continued until the ship be thoroughly copper-fastened.

70. Ships built in India, although fastened with iron, shall be permitted to be copper-sheathed without any mark being placed in the Book, provided the bottom be felted or chumamed and wood-sheathed, and subjected to a careful examination of the iron fastenings on every occasion on which the sheathing is stripped off, for which purpose some of the bolts and nails are to be taken out of the lower part of the bottom, and to be seen by the Surveyor; but no such ship shall be permitted to continue either on the A or on the A in red class for a longer period than one-half the number of years beyond the term originally assigned for her remaining on the A character, unless the bottom shall have been doubled, or the whole of the iron fastenings taken out or properly secured, and the bottom refastened with bolts, or tree-nails, or both, including the middle line, breasthook, and crutch bolts.

ANCHORS, CABLES, AND STORES.

71. All vessels are required to have their masts, spars, and standing rigging in good order, and sails in sufficient number and good condition, and every ship is to be supplied with a good hempen stream-cable or hawser of sufficient size and length, and with at least one good warp; and all vessels are to

be provided with anchors of proper weight, and cables of approved quality and size, properly tested, in number and length according to the under-mentioned scale :—

ANCHORS.

72. All vessels under 200 tons to have at least two bower anchors, and all vessels of 200 tons and above, to be provided with at least three bower anchors.

Cables.

Tons.	Fathoms.
73. All vessels under 100 to have at least 120 if chain.	
— of 100 and under 150	150 do.
— 150	250
— 250	350
— 350	500
— 500	700
— 700 and upwards	300 do.

The length and condition of the Chain Cables are to be ascertained by removal from the lockers on every Special Survey for Classification.

A Certificate of all new Chains having been tested, and of the strain applied to them, must be produced before a Ship is classed. The amount of strain applied should be marked on each length.

74. In all cases where hempen cables are used, one-sixth more in length will be required.

BOATS.

75. All vessels under 150 tons to be provided with one good Boat; and every vessel of 150 tons and above to have a suitable number.

76. The efficient state and condition of ships' anchors, cables, and stores, will be designated by the figure 1; and where the same are found insufficient in quantity, or defective in quality, by the figure 2.

SHIPS NAVIGATED BY STEAM.

77. All sea-going vessels navigated by *Steam* shall be required to be surveyed *twice in each year*, when a character will be assigned to them according to the report of survey.

78. That with respect to the Boilers and Machinery, the Owners are required to produce to the Surveyors at the above-directed surveys, a certificate from some competent *Master Engineer*, describing their state and condition at those periods; and to which certificate it is desirable there should be added a description of the particulars of the same, as far as may be practicable, in the manner and form annexed, No. 8; to be appended to the

report of survey, and delivered to the Committee, who will thereupon insert in the Register Book the letters "M.C." denoting that the boilers and machinery have been inspected and certified to be in good order and safe working condition ; but if no certificate of their condition be furnished by the Owner or Master, then no character can be assigned for the machinery.

79. HULL:—The Surveyors are directed to examine and report the scantling of timbers, plank, and fastenings, and to state where built, and by whom, in the same manner as directed for sailing vessels.

The following relaxation from the Rules applicable to sailing vessels will be allowed in favour of steamers.

Fir (to be either Pitch Pine, Baltic Red-Fir, or American Red Pine), Larch, Hackmatack, or Juniper, may be used for upper deck beams, to an extent not exceeding *one-half* the number of beams required according to the vessel's tonnage.

The same materials may be used in the outside planking from the first foot-hoak heads upwards, excepting for the wales, sheerstrakes, and plankshears.

The same materials may be likewise used in the inside planking, excepting for the bilge planks, shelf-pieces and stringers, and clamps.

Steam-vessels built in all other respects in conformity with the annexed tables shall be classed for the terms of years therein respectively prescribed, subject to the following conditions :—

That the Rule requiring a survey 'twice a year' be rigidly enforced, and that whenever the boilers are taken out, the vessel shall be subjected to a particular and special survey, in order to ascertain her general condition, and particularly the state of the Fir, or other materials herein allowed to be used.

That unless such surveys be held, the Characters which may have been assigned to steam-vessels shall be struck out annually on reprinting the Register Book.

80. SCANTLINGS:—The scantlings of the frame for a steam-vessel under 300 tons register including the engine room, are to be deemed sufficient, if equal to those required by the scale prescribed in the Rules of this Society for a sailing vessel of *two-thirds* of the total tonnage of such steam-vessel.

81. But for a steam-vessel *above* 300 tons register, including the engine room, the scantlings of the frame are to be equal to those required by the scale for a sailing vessel of *three-fourths* of the total tonnage of such steam-vessel.

82. FLOORS:—Where the vessel is not *filled in solid to the floor-heads in the engine room*, an exception will be specially made against any reduction of

the scantling of the *floors*, which in such cases will not be permitted to be upon the reduced scale of two-thirds or three-fourths of the dimensions for the *scantling* of sailing vessels, as before stated; but the *floors* will then be required to be equal to the dimensions set forth in the Rules for ships of the tonnage of the steam-vessel, including the engine room.

Vessels fitted with Auxiliary steam power are considered to be sailing vessels (not steamers), and will not be allowed any exception as to their scantlings.

83. The Surveyors are required to report the number, size, length, fastenings, and mode of arrangement of the engine and boiler *sleepers*, and the description of timber of which they are composed, and whether diagonally trussed with wood or iron, and to what extent; the length, size, and fastenings of shelf-pieces and paddle-beams; and whether the vessel be constructed with sponcings, and how they are formed; and to give the length and shifting of the plank outside and inside.

84. MATERIALS AND STORES:—The Surveyors are to examine and report the number and description of the masts, sails, anchors, cables, hawsers, warps, and boats, as directed to be done for sailing vessels; but the anchors and cables will not be required to exceed in weight and length those of a sailing vessel of two-thirds of the total tonnage of the steam-vessel.

85. The Surveyors are to be particular in examining and reporting the condition of the boats of all vessels employed in carrying passengers.

The foregoing Rules having been amended or altered in sections 31, 32, 35, 37, 38, 39, 41, 46, 53, 54, 59, 60, 62, 67, 68, and 73, and in conformity with the several Resolutions passed by the Committee, the attention of Ship-owners and Ship-builders is respectfully invited to the consideration of these Rules, as well as to the amended Tables A and B, likewise to the Rules and Tables of Dimensions for Iron Ships, which have been very carefully revised and extensively amended.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill.*

1st July, 1857.

EXHIBIT

Floors.	
English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, & Iron Bark	12
Mahogany of Hard Texture and Cuba Sabicu and Pencil Cedar	10
Adriatic, Spanish, and French Oak	10
†Red Cedar, Angelly, and Venatica	9
Other Continental W. Oak, Span. Ches., Stringy Bark, & Blue Gum	9
North American White Oak and American Sweet Chestnut.....	8
Larch, Hackmatack, Tamarac, and Juniper	7
Pitch Pine	7
Second-hand English Oak, African Oak, and East-India Teak	7
Cowdie	6 ¶
Baltic and American Red Pine....	5
English Ash	7
Foreign Ash	5
American Rock Elm	6 ¶
European and American Grey Elm	5
Black Birch	5 ¶
Spruce Fir	5
English Beech	5 ¶
Yellow Pine	—

§ The use of EI

SHIPS \ae .

61. Ships that have passed the prescribed age for the A Character, but have not undergone the repairs which would have entitled them to be Continued or Restored; or having been Continued or Restored, and the additional period thus assigned expired, and also such ships as have never had an original character, which shall be found on survey fit for the conveyance of dry and perishable goods on *shorter voyages*, shall be distinguished by the diphthong \ae ; and a careful survey will be required to be made *annually*, or on the return of the ship from every foreign voyage, by one of the Surveyors to this Society, who is to state distinctly and separately the actual condition of the *upper deck fastenings, waterways, spirketting, plankshears, topsides, upper deck with its appendages, lower deck fastenings, wales, counter, plank, and treenails outside to the water's edge, rudder, windlass and capstan, beams, breasthooks, transoms, and timbers*; but if not surveyed within twelve months, such ship having been during that time in some port in the United Kingdom, the character will be omitted until such survey be held; or, as the case may be, she will be allowed to pass into the class E.

62. Ships built in the British North-American Colonies, and all ships wherever built, the frames of which are composed of *Fir*, of 400 tons and above, shall, in order to entitle them to be classed in the Register Book of the Society, be secured in their bilges by the application of iron knee riders, or hanging knees and riders to cover the joints of the floor and foothook heads, to extend from the height of the hold beams to the floors so as to receive not less than two bolts in a substantial part of the floors; the number of iron knees and riders to be not less than one of each to every hold or lower deck beam on each side. The knees to be connected with the riders or not, at the option or convenience of the owners; but if not so connected, the side arms of the knees are to be of the length and to be fastened as prescribed in Table F. The number of knees to each deck, and of riders, also their dimensions, and number of bolts, are fully explained in Table F. All ships built in the Colonies will be considered as "iron fastened" in their centre lines, unless it shall be satisfactorily shown to the contrary, either by the exposure of some of the bolts, or by a certificate to be produced from the builders.

On and after the 1st January, 1858, ships which proceed to sea *without being fastened with the iron knees and riders prescribed by the rules, will*

TABLE A.

EXHIBITING THE NUMBER OF YEARS ASSIGNED TO THE DIFFERENT DESCRIPTIONS OF TIMBER, OF GOOD QUALITY, AS USED IN THE TIMBERING AND PLANKING OF SHIPS.

	TIMBERING.									Rudder and Windlass. — Main Pieces.	OUTSIDE PLANK.				INSIDE PLANK.			
	Floors.	First Foothooks.	Second Foothooks.	Third Foothooks and Top Timbers.	Main and Rider Keelsons.	Stem and Stern Post.	Transoms, Knight- heads, Hawse- Timbers, Apron, and Deadwood*	Beams and Hooks.	Knees.		Keel to First Futtock Heads.	First Futtock Heads to Light Mark	Light Mark to Wales.	Wales, Black- Strakes, Topsides, and Sheer- strakes.	Upper deck Waterway, Spirk'tting, and Planksh'rs.	Limber Strakes and Bilge Strakes.	Ceiling: LowerHold and between Decks.	Shelf Pieces Clamps, & Lower Dk Waterway
English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, & Iron Bark	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, & Iron Bark
Mahogany of Hard Texture and Cuba Sabieu and Pencil Cedar	10	10	10	10	10	10	10	12	12	10	12	10	10	12	12	12	12	Mahogany of Hard Texture and Cuba Sabieu and Pencil Cedar
Adriatic, Spanish, and French Oak	10	10	9	9	10	9	9	10	10	9	12	12	10	9	10	12	12	Adriatic, Spanish, and French Oak
† Red Cedar, Angelly, and Venatica	9	9	9	9	10	9	9	10	10	—	12	12	12	10	10	12	12	† Red Cedar, Angelly, and Venatica
Other Continental W. Oak, Span. Ches., Stringy Bark, & Blue Gum	9	9†	7	7	9	7	7	8	8	7	12	12	9	8	9	10	10	Other Continental W. Oak, Span. Ches., Stringy Bark, & Blue Gum
North American White Oak and American Sweet Chestnut.....	8	8‡	7	7	8	7	7	7	7	7	12	10	8	7	7	9	9	North American White Oak and American Sweet Chestnut
Larch, Hackmatack, Tamarac, and Juniper	7	7	7	7	8	7	7	7	7	7||	12	10	8	7	10	7	8	Larch, Hackmatack, Tamarac, and Juniper
Pitch Pine	7	7	7	7	9	7	7	8	8	7||	12	12	9	9	10	9	9	Pitch Pine
Second-hand English Oak, African Oak, and East-India Teak	7	7	6	6	6	5	6	6	6	5	—	—	—	—	5	5	5	Second-hand English Oak, African Oak, and East-India Teak
Cowdie	6 ¶	6	6	7	7	6	6	7	7	—	10	9	8	7	10	7	8	Cowdie
Baltic and American Red Pine....	5	5	5	7	7	5	5	7	7	5||	9	9	8	7	10	7	8	Baltic and American Red Pine
English Ash	7	6	5	5	5	4	4	5	5	5||	10	7	4	—	—	5	5	English Ash
Foreign Ash	5	5	4	4	5	4	4	5	5	—	10	7	4	—	—	5	5	Foreign Ash
American Rock Elm	6 ¶	6	5	5	6	5	5	5	5	4	12§	8	6	5	5	7	6	American Rock Elm
European and American Grey Elm	5	5	4	4	4	4	4	5	5	—	12§	8	5	4	4	5	4	European and American Grey Elm
Black Birch	5 ¶	5**	4	4	4	4	4	4	4	4||	10	7	4	4	4	5	4	Black Birch
Spruce Fir	5	5	4	4	4	4	4	4	7	4||	6	5	4	4	4	5	4	Spruce Fir
English Beech	5 ¶	4	—	—	4	—	—	—	—	4||	12§	8	4	—	—	5	4	English Beech
Yellow Pine	—	—	—	4	4	4	4	4	4	—	6	5	5	5	5††	5	5	Yellow Pine

* This Table applies as to the Deadwood so far as regards the Material to be used from the height of two feet above the rabbet of the Keel.

† Live Oak and Red Cedar admitted alternately in Timbers of the Frame for 10 A.

‡ If the First Foothooks run up above the Light Watermark, the use of Foreign White Oak is allowed for the 7 years' grade only.

§ The use of Elm and Beech, in Ships above the 8 years' grade, to be restricted to a height from the lower part of the Main Keel, of one-third of the internal depth of the Ship measured, in midships, from the top of the Limber Stake to the top of the Upper Deck Beams.

¶ Black Birch, Beech, American Rock Elm, and Cowdie, allowed for Floors in Midships, to an extent not exceeding one-half the entire length of the Keel, in Ships of the 7 years' grade.

** Black Birch allowed for First Futtocks amidships, to the same extent in Ships of the 6 years' grade.

†† Yellow Pine allowed for Waterways of Upper Deck in Ships of the 7 years' grade, if properly fastened, as prescribed in Table B, and provided the Beams are well secured independently of the Waterways.

White Cedar allowed for Third Foothooks and Toptimbers in Ships of the 7 years' grade.

MEM.—The word "English" includes Timber the growth of the United Kingdom. — For relaxation in favour of Steam Vessels, *vide* Rules, page 24.

The Materials marked thus || under the head of "Rudder and Windlass," allowed in Ships of 300 Tons and under *only*.

TABLE B.

MINIMUM DIMENSIONS OF TIMBERS, KEELSON, KEEL, PLANKING, &c.

TABLE C.

SIDING AND MOULDING OF BEAMS.
See Section 41.

TONNAGE	TONS....	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1050	1150	1250	1350	1500	1750	2000	
TIMBER AND SPACE	INCHES..	18	19	20	21 $\frac{1}{2}$	23	24 $\frac{1}{4}$	25 $\frac{3}{4}$	27 $\frac{1}{4}$	28 $\frac{1}{2}$	30	30 $\frac{1}{4}$	30 $\frac{1}{2}$	31	31 $\frac{1}{4}$	31 $\frac{1}{2}$	31 $\frac{3}{4}$	32 $\frac{1}{4}$	32 $\frac{3}{4}$	33 $\frac{1}{4}$	33 $\frac{1}{2}$	33 $\frac{1}{4}$	33 $\frac{1}{2}$	33 $\frac{3}{4}$	34	34 $\frac{1}{2}$	35	
Floors, sided and moulded at Keelson, if square		7	7 $\frac{1}{2}$	8	8 $\frac{3}{4}$	9 $\frac{1}{2}$	10 $\frac{1}{4}$	11	11 $\frac{3}{4}$	12 $\frac{1}{4}$	13	13 $\frac{1}{4}$	13 $\frac{1}{2}$	13 $\frac{3}{4}$	13 $\frac{3}{4}$	14	14	14 $\frac{1}{4}$	14 $\frac{1}{2}$	14 $\frac{3}{4}$	15	15 $\frac{1}{4}$	15 $\frac{1}{4}$	15 $\frac{1}{2}$	15 $\frac{3}{4}$			
Double Floors, sided and moulded at Keelson, if square		6	6 $\frac{1}{2}$	7	7 $\frac{3}{4}$	8 $\frac{1}{2}$	9 $\frac{1}{4}$	10	10 $\frac{1}{2}$	11 $\frac{1}{4}$	12	12 $\frac{1}{4}$	12 $\frac{1}{2}$	12 $\frac{2}{3}$	12 $\frac{3}{4}$	13	13	13 $\frac{1}{4}$	13 $\frac{1}{2}$	13 $\frac{3}{4}$	14	14 $\frac{1}{4}$	14 $\frac{1}{4}$	14 $\frac{1}{2}$	14 $\frac{3}{4}$			
1st Futtocks, sided and moulded at Floor Heads, if square ..		6	6 $\frac{1}{2}$	7	7 $\frac{3}{4}$	8 $\frac{1}{4}$	8 $\frac{3}{4}$	9 $\frac{1}{4}$	10	10 $\frac{1}{2}$	11	11 $\frac{1}{4}$	11 $\frac{1}{2}$	11 $\frac{3}{4}$	12	12 $\frac{1}{4}$	12 $\frac{1}{2}$	12 $\frac{2}{3}$	13 $\frac{1}{4}$	13 $\frac{1}{2}$	13 $\frac{3}{4}$	14 $\frac{1}{4}$	14 $\frac{1}{4}$	14 $\frac{1}{2}$	14 $\frac{3}{4}$			
2nd Futtocks, sided, if square		5 $\frac{1}{2}$	6	6 $\frac{1}{2}$	7	7 $\frac{1}{2}$	8	8 $\frac{1}{2}$	9	9 $\frac{1}{2}$	10	10 $\frac{1}{4}$	10 $\frac{1}{2}$	10 $\frac{3}{4}$	10 $\frac{3}{4}$	11	11 $\frac{1}{4}$	11 $\frac{1}{2}$	11 $\frac{3}{4}$	12 $\frac{1}{4}$	12 $\frac{1}{2}$	12 $\frac{2}{3}$	13 $\frac{1}{4}$	13 $\frac{1}{2}$	13 $\frac{3}{4}$			
3rd Futtocks and Long Top Timbers, sided, if square		5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	6 $\frac{1}{2}$	7	7 $\frac{1}{4}$	7 $\frac{3}{4}$	8 $\frac{1}{4}$	8 $\frac{1}{2}$	9	9 $\frac{1}{4}$	9 $\frac{1}{2}$	9 $\frac{3}{4}$	9 $\frac{3}{4}$	10	10 $\frac{1}{4}$	10 $\frac{1}{2}$	10 $\frac{3}{4}$	11 $\frac{1}{2}$	11 $\frac{3}{4}$	12 $\frac{1}{4}$	12 $\frac{1}{2}$	12 $\frac{2}{3}$	13 $\frac{1}{4}$			
Top Timbers (Short) sided, if square . . . . .		..	..	..	..	..	..	..	..	..	9	9 $\frac{1}{4}$	9 $\frac{1}{2}$	9 $\frac{3}{4}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{3}{4}$	9 $\frac{3}{4}$	10	10	10 $\frac{1}{4}$	10 $\frac{1}{2}$	10 $\frac{3}{4}$	11	11 $\frac{1}{4}$
Top Timbers, moulded at heads, if square		4	4 $\frac{1}{2}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	6	6 $\frac{1}{4}$	6 $\frac{1}{2}$	6 $\frac{1}{4}$	6 $\frac{1}{2}$	6 $\frac{3}{4}$	7	7	7 $\frac{1}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{3}{4}$	9			
Breasthooks & Wing Transom, sided & moulded in the middle		8	8 $\frac{1}{2}$	9	9 $\frac{3}{4}$	10 $\frac{1}{4}$	10 $\frac{3}{4}$	11 $\frac{1}{4}$	12	12 $\frac{1}{2}$	13	13 $\frac{1}{4}$	13 $\frac{1}{2}$	13 $\frac{3}{4}$	13 $\frac{3}{4}$	14	14	14 $\frac{1}{4}$	14 $\frac{1}{2}$	14 $\frac{3}{4}$	15	15 $\frac{1}{4}$	15 $\frac{1}{4}$	15 $\frac{1}{2}$	16			
*Keel, Stem, Apron, and Sternpost, sided and moulded		8	9	10	10 $\frac{3}{4}$	11 $\frac{1}{4}$	11 $\frac{3}{4}$	12 $\frac{1}{4}$	13	13 $\frac{1}{2}$	14	14 $\frac{1}{4}$	14 $\frac{1}{4}$	14 $\frac{1}{2}$	14 $\frac{1}{2}$	14 $\frac{3}{4}$	15	15	15 $\frac{1}{4}$	15 $\frac{1}{2}$	16	16 $\frac{1}{4}$	16 $\frac{1}{2}$	16 $\frac{3}{4}$	17			
Keelson, sided and moulded		9	10	11	11 $\frac{3}{4}$	12 $\frac{1}{4}$	12 $\frac{3}{4}$	13 $\frac{1}{4}$	14	14 $\frac{1}{2}$	15	15 $\frac{1}{4}$	15 $\frac{1}{4}$	15 $\frac{1}{2}$	15 $\frac{1}{2}$	15 $\frac{3}{4}$	16	16	16 $\frac{1}{4}$	16 $\frac{1}{2}$	16 $\frac{3}{4}$	17	17 $\frac{1}{2}$	17 $\frac{3}{4}$	18			
Wales		3	3 $\frac{1}{2}$	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	6	6 $\frac{1}{4}$	6 $\frac{1}{2}$	6 $\frac{3}{4}$	7				
†Bottom Plank, from Keel to Wales		2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4	4	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	5			
Sheer Strakes, Topsides, Upper Deck Clamp where there is no Shelf fitted, and Lower Deck Clamp with a Shelf		2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4	4	4	4	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	5			
Ceiling below Hold Beam Clamp		1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	3$\frac{1}{2}$	3$\frac{1}{2}$	3$\frac{1}{2}$	3$\frac{1}{2}$	3$\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4	4 $\frac{1}{4}$	4 $\frac{1}{2}$			
‡Waterway, { Hardwood		3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	5	5 $\frac{1}{2}$	5 $\frac{1}{2}$	6	6	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	7	7	7	7 $\frac{1}{2}$	7$\frac{1}{2}$	7$\frac{1}{2}$	7$\frac{1}{2}$	7$\frac{1}{2}$	8	8 $\frac{1}{2}$	8 $\frac{1}{2}$	9			
Fir		4	4 $\frac{1}{2}$	5	5 $\frac{1}{2}$	6	6 $\frac{1}{2}$	6 $\frac{1}{2}$	7	7 $\frac{1}{2}$	8	8	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	9 $\frac{1}{2}$	10											
Ceiling betwixt Decks		1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$				
Bilge Plank, inside, Thick Strakes over long and short Floorheads, and Limber Strake		2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	6 $\frac{1}{4}$	6 $\frac{1}{2}$	6 $\frac{3}{4}$			
Lower Deck Clamp where there is no shelf fitted, and Spirketting . . . . .		..	..	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$
Upper Deck Clamp where a shelf is also fitted		2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4	4 $\frac{1}{4}$	4 $\frac{1}{2}$									
Planksheer		2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4	4	4	4	4	4	4	4	4	4	4	4	4	4 $\frac{1}{4}$	4 $\frac{1}{2}$				
Flat of Upper Deck		2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4	4	4	4			
Scarphs of Keelson without Rider		ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.		
Ditto, where Rider Keelson is added, also Scarphs of Keel . . .		4	6	4	9	5	0	5	3	5	6	5	6	5	9	6	0	6	0	6	0	6	3	6	3	6	6	6

Moulding of Futtocks and Top Timbers to diminish gradually from size given at Floor Heads to that at Top Timber Heads. See Rule, sec. 38.

* The rabbet of the Keel, Stem, and Sternpost to be made so as to leave a sufficient substance of wood to form a substantial back rabbet.

† All the fore and after hoods, both outside and inside, may be reduced one-sixth in thickness. Furrrens are not allowed in this or in any other part of a ship.

‡ This Depth of Waterway for Faying Surface against Timbers is required, below the underside of the Planksheer, to receive in and out through Bolts at alternate Timbers, with alternate through bolts in Shelf and in Clamp where there is no Shelf.

MEM. In the inside and outside planking, waterways, planksheers, and flat of deck of full poops and top-gallant forecastles, a reduction of *one-fourth* from the thickness required by the Table B for such planks in the range of the upper deck in ships with two decks, will be allowed; and in the siding and moulding of the top timbers and beams of full poops and top-gallant forecastles, a reduction of *one-fifth* will be allowed. In the inside and outside planking, waterways, planksheers, and flat of deck of raised quarter decks, a reduction of *one-fifth* from the thickness required by the Table B for such planks in the range of the upper deck in ships with two decks, will be allowed; and in the siding and moulding of the top timbers and beams of full poops and top-gallant forecastles, a reduction of *one-fifth* will be allowed.

LENGTH OF BEAM amidships.	HOLD BEAMS		DECK BEAMS	
	sided and moulded.	at ends.	sided and moulded.	at ends.
Feet	Inches.	Inches.	Inches.	Inches.
10	—	—	4 $\frac{1}{2}$	3 $\frac{3}{4}$
11	—	—	5	4
12	—	—	5 $\frac{1}{4}$	4 $\frac{1}{4}$
13	—	—	5 $\frac{1}{2}$	4 $\frac{1}{2}$
14	—	—	5 $\frac{3}{4}$	4 $\frac{3}{$

TABLE D.

SIZES OF BOLTS, PINTLES OF RUDDER, AND TREENAILS.

Section 46.

TONNAGE	Not exceeding Tons	50	100	150	200	250	300	350	400	450	500	700	900	1350
Heel-Knee, Stemson, and Deadwood Bolts	Inches	$\frac{7}{8}$	$\frac{15}{16}$	1	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{5}{16}$	$1\frac{3}{8}$	$1\frac{1}{2}$
Bolts in Scarphs of Keel,* Arms of Breast Hooks, Pointers, Crutches, Riders, Hanging and Lodging Knees to Hold or Lower Deck Beams (except in and out Throat Bolts of Hanging Knees, which must be larger), also in and out Bolts of Shelf, Clamp, and Waterway of Hold or Lower Deck Beams, and the in and out Throat Bolts of Upper Deck Hanging Knees		$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	$\frac{15}{16}$	1	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$
Keelson Bolts (one through Keel at each Floor), Throats of Transoms, Throats of Breasthooks, and Throats of Hanging Knees to Hold or Lower Deck Beams		$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	1	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$1\frac{3}{8}$
Bilge, Limber Strake, and Through Butt Bolts		$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	1
Other Butt Bolts.....		$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$
In and out Bolts of Upper Deck Waterway, Shelf and Clamp, also Arms of Hanging and Lodging Knees, except in and out Throat Bolts of Hanging Knees, which must be larger.)		$\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{8}$
Pintles of Rudder {The Braces of which must extend so as to receive not less than Two Bolts on the Planking on each side.)		$1\frac{7}{8}$	2	2	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	3	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{1}{2}$
Hardwood Treenails		1	1	1	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{1}{2}$

* NUMBER OF BOLTS IN SCARPHS OF KEEL:—

In Ships of 150 Tons and under 6 Bolts

,, above 150 Tons and under 500 Tons ... 7 do.

,, 500 Tons and above 8 do.

N.B.—Bolts to be through and clenched, as prescribed in Section 46.

TABLE E.

NUMBER OF HANGING KNEES,

Section 41.

Tons.	To Hold Beams.	To Upper Deck Beams.
	PAIRS.	PAIRS.
150	—	4
200	4	6
250	5	7
300	6	8
350	7	9
400	8	10
450	8	11
500	9	12
550	9	13
600	10	14
650	10	15
700	11	16
750	11	17
800	12	18
900	13	20
1000	14	22
1100	15	24
1350	17	26

TABLE F.

MINIMUM DIMENSIONS OF IRON KNEES AND KNEE RIDERS FOR BRITISH NORTH AMERICAN BUILT SHIPS AND FIR SHIPS.—Section 62.

TONNAGE Tons	150	200	250	300	350	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000			
Number of Hanging Knees to Hold or Lower Deck Beams Pairs	3	4	6	8	9	Upwards, one Knee Rider to every Beam, or						Knees and Riders as per Section 62																	
Number of Hanging Knees to Upper and Middle Deck Beams Pairs	4	6	7	8	9	10	11	12	13	14	15	16	17	18	Upwards, one to every Beam														
Breadth of Knees and Riders to Hold or Lower Deck Beams Inches	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$			
Breadth of Upper Deck Knees, where there are two Decks, and of Middle Deck Knees, where there are three Decks* Inches	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$			
Thickness of Riders at the joints or butts of the Timbers Inches	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	
Thickness of Knees to Lower Deck or Hold Beams and Knee Riders at the Angle of the Throat Inches	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4	4	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$			
Thickness of Knees to Lower Deck or Hold Beams and Knee Riders at the Throat Bolts Inches	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$		
Thickness of Knees to Upper or Middle Deck at the Throat Bolts * Inches	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{3}{4}$	3	3	3	3	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	
Thickness of Hanging Knees (not Riders) at the ends Inches	5	5	3	3	3	3	3	3	7	7	7	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Length of Beam Arms of Knees and Knee Riders for Lower Deck or Hold Beams† ...	ft. 2 ft. 6 in.	ft. 2 ft. 6 in.	ft. 2 ft. 9 in.	ft. 2 ft. 9 in.	ft. 3 ft. 0 in.	ft. 3 ft. 0 in.	ft. 3 ft. 0 in.	ft. 3 ft. 0 in.	ft. 3 ft. 3 in.	ft. 3 ft. 3 in.	ft. 3 ft. 3 in.	ft. 3 ft. 6 in.	ft. 3 ft. 6 in.	ft. 3 ft. 6 in.	ft. 3 ft. 9 in.	ft. 3 ft. 9 in.	ft. 3 ft. 9 in.	ft. 3 ft. 9 in.	ft. 4 ft. 0 in.										

NOTE.—The Bolts in all Iron Riders in Hold, to be not more than twenty-one inches apart on the average.

Standards upon the Beams of such Ships are not admitted as substitutes for Hanging Knees below them.

For sizes of Bolts, see Table D.

* Breadth and thickness of Knees for Upper Deck, where there are Three Decks, may be one sixth less.

† Beam Arms of Upper and Middle Deck Knees, may be three inches shorter than those of the Lower Deck.

Side Arms of Hanging Knees not to be less in length, than one and a half the length of their Beam Arms.

Beam Arms of Knees and Knee Riders, which are 3ft. 6in. in length, to have not less than Four Bolts, and shorter than that length, to have not less than Three Bolts.

Side Arms of all Hanging Knees to have at least One Bolt more than in the Beam Arms.

RULES FOR THE BUILDING OF SEA-GOING IRON SHIPS, OF ALL DESCRIPTIONS, WHETHER SAILING OR NAVIGATED BY STEAM.

1. The whole of the iron to be of good malleable quality, and the manufacturer's name to be stated in the report of survey, the workmanship to be well executed, and to be submitted to the closest inspection before coating or painting, and any brittle or inferior article to be rejected. It is not intended to prevent the coating of the plates inside in the way of the frames.

2. The keel, stem, stern, and propeller posts are to be scarphed or welded together at discretion, and to be in size according to Table G; if scarphed, the length of scarphs to be regulated in the proportion of eight times the thickness given in the table for keels, and the stern posts, and after end of keel, for screw propelled vessels, to be double the thickness of, or twice the sectional area of, the adjoining length of keel (but the siding in no case to be less than the thickness of the keel), and to be tapered fair into the adjoining length of keel. Where the garboard strakes are thicker than required by the rules, and extend to the bottom of the keel, the thickness of the keel may be proportionably reduced, but such reduction not to exceed one-third of the requisitions of the Rule. Where the keel and keelsons are made of several thicknesses of plates, the plates that form the keel to be in thickness, taken together, the same as is required for a solid keel, as per Table G; and the butts of the several plates of which the keel is formed to be carefully shifted from each other, and from the butts of the garboard strakes, which in all cases must also be shifted, so as not to be opposite each other.

3. The spacing and dimensions of the ribs or frames, to be as per Table G, and the ribs or frames in as great lengths as possible, and to be fitted close on to the upper edge of the keel, and in all cases to extend to the gunwale, and wherever butted, to have not less than four feet lengths of corresponding angle iron fitted back to back to cover and support the butts and receive the plating. And if welded together, the welds to be perfect, and the shifts not to be less than four feet.

Quality of Iron
and Workman-
ship.

Keel, Stem, Stern
and Propeller
Posts.

Ribs of Frames,
Spacing, &c.

Floor Plates.

4. The floor plates to be in thickness as per Table G, and to extend beyond the bilge keelsons, and to be in depth at middle line not less than one inch for every foot of the vessel's depth, measured from the top of upper or spar deck beams to top of floor plate, and not to be less in depth at the bilge keelsons than the moulding of the frame. A floor plate to be fitted and rivetted to every frame, and at the ends of the vessel the floor plates to be worked across the middle line so as to support and unite the sides of the vessel efficiently to each other.

Reversed Angle Iron.

5. Reversed angle iron on frames to be in size as per Table G. All vessels, of whatever size, to have reversed angle iron rivetted to every frame and floor plate across the middle line to the height of upper part of bilges, and to have double reversed angle iron in way of all keelsons; and in addition all vessels of 300 tons and upwards to have reversed angle iron extended from bilges to the upper deck beam stringer on alternate frames, and vessels of 800 tons and upwards to have reversed angle iron extended on every frame from bilges to lower deck or hold beam stringer, if the vessel has two decks or tiers of beams, and to the height of middle deck beam stringer if the vessel has three decks or tiers of beams; the rivets for securing the reversed angle iron to the frames and floor plates to be in diameter equal to those specified in the table for the outside plating, and not to exceed six times their own diameter apart.

Middle Line Keelson.

6. The middle line keelsons,* if of single plate, to be of the same thickness as the floor plates, and if standing above the floor plates to be well fitted and rivetted to the same, and a reversed angle iron to be fitted on each side, both on the top and the bottom, extending all fore and aft, the lower angle irons to be secured to the double reversed angle irons on the top of floors. If box keelsons be adopted, the plating to be of the thickness as per Table G, and in either case to be two-thirds of the depth of floor plates.

If intercostal middle line keelsons be adopted, they are to be of the same thickness as the floor plates, and rivetted to vertical angle irons on all floor plates at each end, the plates to extend from upper edge of keel to above the upper edge of floor plates, sufficiently high to be rivetted between the double angle irons extending all fore and aft, of the dimensions given in the Table G, and the said double angle irons of keelson are to be rivetted to double angle irons on top of all floor plates.

* In all cases the Keelsons, and *where practicable*, the Shelfpieces and Stringers, are to be carried fore and aft, without being cut off at the Bulkheads, the latter being made watertight around them; and where such parts of the ship are necessarily separated, they are to be efficiently connected, to the satisfaction of the Surveyor.

7. The bilge keelsons to be fitted and secured in an efficient manner, Bilge Keelsons, extending all fore and aft, and placed at lower turn of bilges, according to the form of the bottom. In ships of 1000 tons and upwards, an intercostal keelson to be fitted on each side, fore and aft as far as practicable, about midway between the middle line keelson and the bilge keelson, with double angle iron riveted on the top of floor plates. All vessels of 500 tons and upwards to have fitted between the bilge keelsons and the hold beams, at the upper part of the turn of bilge, strong angle irons, as stringers, extending all fore and aft, riveted back to back to the reversed irons on the frames, the size of them not to be less than those used for the middle line keelson.

8. All plates to be well fitted and secured to the ribs and each other, the Plating. butts to be closely fitted, and to be united by lining pieces or strips of not less than the same thickness as the plates, and of sufficient breadth for rivetting, as described hereafter. No butts of outside plating to be nearer each other than one space of frames, nor to be nearer to a scarph of keel than that distance.

The space between the outside plating and the frames, to have solid filling pieces closely fitted in one length, of the same breadth as the frames.

9. In the outside plating, stringer plates upon beams, angle iron on stringer plates, and flat of deck of raised quarter-decks, a reduction of one-fifth from the thickness required by the Table G for such parts in the range of the upper deck in ships with two decks will be allowed.

In the outside plating, stringer plates upon beams, angle iron on stringer plates, and flat of deck of full poops and top gallant forecastles, a reduction of one-fourth from the thickness required by the Table G for such parts in the range of the upper deck in ships with two decks will be allowed, and for the beams of full poops and top gallant forecastles a reduction of one-fifth will be allowed. The united lengths of poop and forecastle not to exceed three-fifths of the entire length of the upper deck.

In the scantlings of beams, plating, flat of deck, stringer plates, and angle iron on stringer's to upper (or spar deck) in vessels with three decks, viz., upper, middle, and lower deck, a reduction of one-sixth from the dimensions given for such parts in the range of upper deck in ships with two decks will be allowed.

10. For the spacing of beams the depth of hold is measured amidship from the top of the floor plates to the top of the upper deck beams in vessels with two decks, and to the top of the middle deck beams in vessels with three decks.

The beams to be of the dimensions as per Table G, and to be made of "bulb," or any other approved iron plates, with reversed angle iron rivetted

Reductions
allowed in raised
Quarter Decks,
Poops, Forecastles
&c.

Depth of Hold, for
Space of Beams.

to the plates, the beams to be well and efficiently connected or riveted to the corresponding frames at the sides of the vessel, with bracket ends or knee plates of thickness equal to the beams, and in length, as per Table G, also to the stringer plates, the beams of each deck to be over each other, and pillared where practicable.

Upper deck beams in vessels with one or two tiers of beams, and the upper (or spar deck) and middle deck beams in vessels with three tiers of beams, to be fastened to alternate frames.

Vessels of 12 feet and under 13 feet depth of hold, or where the gross register tonnage exceeds 200 tons, shall be required to have as many hold beams as may be practicable or convenient, fastened to, at least, every eighth frame.

Vessels of 13 feet depth and under 15 feet, to have hold beams fastened to every fourth frame.

Vessels of 15 feet depth and under 18 feet, to have hold or lower deck beams fastened to every second and fourth frame, alternately.

Vessels of 18 feet depth and under 23 feet, to have hold or lower deck beams fastened to every alternate frame.

All vessels having two decks, and exceeding 23 feet in depth to the upper side of upper deck beams, and in vessels with three decks, viz., upper (or spar), middle, and lower deck, and exceeding 23 feet in depth to upper side of middle deck beams, such vessels to have orlop beams fastened to every sixth frame.

Where a deviation from the foregoing Rules as applying to beams takes place in way of engine-rooms or hatchways, or where no deck is intended to be laid, and the above named spaces would materially interfere with the stowage of cargo, and where partial or entire bulkheads with horizontal shelves and stringers between them, or larger beams are substituted for ordinary beams in wider spaces, a sketch with all particulars must be submitted, through the resident surveyor, for the Committee's consideration. The middle deck to be a perfect deck laid and caulked.

Rivets and Riveting.

11. The rivets to be of the best quality, and to be in diameter as per Table G; the rivet holes to be regularly and equally spaced and carefully punched opposite each other in the laps and lining pieces or strips, to be countersunk all through the outer plating; the rivets not to be nearer to the butts or edges of the plating, lining pieces to butts, or of any angle iron, than a space not less than their own diameter, and not to be further apart from centre to centre than four times their diameter, or nearer than three times

their diameter, and to be spaced through the frames and outside plating a distance equal to eight times their diameter apart. When rivetted up they are completely to fill the holes, and their points or outer ends are to be round or convex, and not to be below the surface of the plating through which they are rivetted. All edges or horizontal joints of outside plating to be double rivetted in vessels intended for the 12 years' grade of 700 tons and upwards, and from keel to the height of upper part of bilges, all fore and aft, in vessels intended for the 9 years' grade, and for 12 years' grade under 700 tons. The stem, stern post, keel, edges of garboard strakes and sheer-strakes, and butts of outside plating, and butts of floor plates, breasthooks, transoms, and plates of beams, also butts of keelsons, stringers, shelf-plates, and all other longitudinal ties, to be double rivetted in all vessels. The overlaps of plating, where double rivetting is required, not to be less in breadth than five times the diameter of the rivets; and where single rivetting is admitted, the overlaps to be not less in breadth than three times the diameter of the rivets. If double rivetting be adopted where single rivetting is allowed by the Rules, the diameter of the rivets may be reduced one-sixteenth of an inch below that prescribed by the Rules, provided that in no case the diameter be reduced below five-eighths of an inch. The butts and edges of outside plating to be truly fitted, carefully caulked, and made water-tight.

12. In addition to the engine room bulkheads of steamers, all vessels Bulkheads. to have two water-tight bulkheads, built at a reasonable distance from the ends, to extend from the keel, and outside plating to the upper deck in vessels with two decks, and to the middle deck in vessels with three decks (otherwise called "tonnage deck"); but it shall not be required to extend the aftermost bulkhead to this height if it be continued above the load water line, and be connected to a water-tight platform or deck of iron extending from its upper part entirely round the after part of the vessel, thus enclosing the lower after body in a water-tight tank. If a screw shaft passes through a bulkhead, it is to be made water-tight at the bulkhead. All plating of bulkheads to be of the thickness prescribed in Table G, and to be closely fitted between two frames or ribs at each side of the vessel, and strongly rivetted through them, or if attached only to one frame, then to have brackets or knee plates rivetted horizontally against the side plating of the vessel and to the bulkheads, foreside and aftside alternately, near the middle of the outside plates, to be strongly rivetted thereto. Lining pieces between these frames and outside plating in way of bulkheads are to be plates extend-

ing in one piece from the foreside of the frame afore the bulkhead frames to the aftside of the frame abaft the bulkhead frames; also the bulkheads to be supported vertically by angle irons of the dimensions given in the Table G, which are not to exceed two feet six inches apart, the whole to be efficiently connected and riveted together and to the corresponding floors, beams of the several decks, and the frames or ribs. The whole of the bulkheads to be caulked and made thoroughly water-tight.

Ceiling.

13. The wood ceiling or lining of all vessels from 100 to 3000 tons to be from $1\frac{1}{2}$ inches to 3 inches in thickness, in proportion to the tonnage, and to be so fastened to the reversed angle irons or frames that it may be easily removed for survey and painting.

Decks, Water-ways, and Plank-sheers.

14. The waterways and planksheers, if of wood, not to be inferior in quality of material to that which is prescribed in Table A for vessels built of wood of the same grade. The flat of upper deck to be fastened by screw bolts put through from the upper side, and to have nuts at the under side of the angle iron of the beams; where the planks exceed six inches in width, two bolts in each plank in every beam, one of which may be a short screw bolt. The waterways to be fastened with screw bolts with nuts at under side of stringer plates.

Stringer plates and tie plates.

15. All vessels to have stringer plates upon the ends of each tier of beams, to be not less in breadth and thickness than the dimensions given in Table G, the said stringer plates to be fitted home and riveted to the outside plating at all upper decks, and at the middle deck in vessels having three decks, with angle iron of the dimensions given in the Table; and the stringer plates of the middle deck of ships with three decks to have an additional angle iron extending all fore and aft inside of the frames, and riveted to the reverse angle iron on the frames. All vessels to have upon each tier of beams a tie-plate* each side the hatchways of the dimensions given in Table G, extending all fore and aft throughout, and well riveted to the upper sides of all the beams, deck hooks, and transoms. Also to have plates, where practicable, of the same dimensions, extending diagonally from side to side, riveted to the upper side of beams and stringer plates.

Rudder.

16. The main piece of rudder to be made of the best hammered iron, and so arranged as to ship and unship, where practicable, without docking, and the main piece to be in size, according to the Table G.

* Upon hold beams where no deck is intended to be laid, or where such tie-plates would materially interrupt stowage of cargo, an angle iron, of the dimensions given in the Table G for "Angle Iron on Beam Stringers," will be admitted in lieu thereof, placed at the middle line, extending all fore and aft throughout where practicable, and well riveted to all beams, deck hooks, and transoms.

17. Vessels intended for either the 12, 9, or 6 years' grade to be surveyed Surveys.
at least five times, in the following order, viz :—

On the several parts of the frame, when in place, and before the plating is wrought.

On the plating during the progress of rivetting.

When the beams are in and fastened, and before the decks are laid.

Again when the ship is complete, and before the plating is finally coated.

And lastly, after the ship is launched.

All vessels to be subject to occasional or annual survey when practicable, and every third year to be specially surveyed in dry dock or laid on blocks, with both surfaces of outside plating exposed ; and whenever the engines or the boilers of iron steam ships are taken out, the vessel shall be submitted to a particular and special survey.

CONTINUATION OF IRON SHIPS TO THE CHARACTER A.

18. If, on the termination of the period of original designation, or if at any subsequent period, not exceeding one-half the number of years assigned originally, or on restoration, an owner shall wish to have his ship remain or be replaced on the letter A, he is to send a written notice thereof to the Secretary, and the Committee shall then direct a special survey, as follows, to be held by not less than two competent persons, to be appointed by the Committee, one of them to be a surveyor the exclusive servant of the Society :

SURVEY.

The vessel to be placed on high blocks, in a dry dock, or upon ways, and proper stages to be made, so that the rivets and plates of keel, and flat of bottom, may be thoroughly examined; the whole of the ceiling or lining inside to be entirely removed; coal bunkers of steam vessels to be cleared, so as to expose the whole of the frames, stringers, hooks, floor plates, keelsons, engine and boiler bearers, ends of beams, water-tight bulkheads, rivets, and inner surface of the plating, to view; the hold to be cleared; all oxidation to be removed by being cut or beaten off the several parts above-named, also from the outside plating, rivets, keel, stem, sternpost, and rudder, so as to completely lay bare all the surfaces of iron ; the plankshears and waterways, if of wood, to be scraped bright : and when the vessel is so prepared, the Surveyors are to examine and report the condition and thickness of all the parts of iron above-named, also the condition of the plank-shears, waterways, flat of decks and their fastenings ; and upon the owner consenting to remove and replace with proper materials, equal in substance

and quality to the original construction, such parts as may be found defective, or less than three-fourths of the required substance by Rule, such vessel, upon the repairs and efficiency being reported to the Committee, may be continued on the letter A for a term of years not exceeding one-half the number of years assigned originally, or on restoration, subject to occasional or annual survey when practicable. The period of continuation will, upon all occasions, commence from the time the ship may have gone off the letter A, without regard to the date when the survey for this purpose may be held.

RESTORATION OF IRON SHIPS TO THE CHARACTER A.

19. If, *at any age of a vessel*, an owner be desirous to have his ship restored, such restoration, on his application to the Committee, and consenting to the special survey hereinafter described, to be held by two Surveyors, one of whom shall be an exclusive servant of the Society, and performing the repairs thereby found requisite, will be granted for a period not exceeding two-thirds of the time originally assigned, the same to be calculated from the date of such repairs.

Survey and Requisites for Restoration.

The vessel to be placed on high blocks, in a dry dock, or upon ways, and proper stages to be made, so that the rivets and plates of keel, and flat of bottom, may be thoroughly examined; the whole of the ceiling or lining inside to be entirely removed; coal bunkers of steam vessels to be cleared, the boilers to be taken out and also the engines (unless it shall be shown by previous survey that the removal is unnecessary), so as to expose the whole of the frames, stringers, hooks, floor plates, keelsons, engine and boiler bearers, ends of beams, water-tight bulkheads, rivets, and inner surface of the plating, to view; the hold to be cleared; all oxidation to be removed by being cut or beaten off the several parts above-named, also from the outside plating, rivets, keel, stem, sternpost, and rudder, so as to completely lay bare all the surfaces of iron; the plankshears and waterways, if of wood, to be entirely removed, and also the flat of upper deck, except under special circumstances, to be sanctioned by the Committee in each case; and when the vessel is so prepared, the Surveyors are to examine and report the condition and thickness of all the parts of iron above-named, also the condition of the beams and their fastenings; and upon the owner consenting to remove such parts as may be found defective, or objected to, or less in thickness than hereinafter admitted for repairing such vessel, and replace them with proper materials equal in quality and substance to that required in the Table G for

and quality to the original construction, such parts as may be found defective or less than three-fourths of the required substance by Rule, such vessel upon the repairs and efficiency being reported to the Committee, may be continued on the letter A for a term of years not exceeding one-half the number of years assigned originally, or on restoration, subject to occasional or annual survey when practicable. The period of continuation will, upon all occasions, commence from the time the ship may have gone off the letter A, without regard to the date when the survey for this purpose may be held.

RESTORATION OF IRON SHIPS TO THE CHARACTER A.

19. If, *at any age of a vessel*, an owner be desirous to have his ship restored, such restoration, on his application to the Committee, and consenting to the special survey hereinafter described, to be held by two Surveyors, one of whom shall be an exclusive servant of the Society, and performing the repairs thereby found requisite, will be granted for a period not exceeding two-thirds of the time originally assigned, the same to be calculated from the date of such repairs.

Survey and Requisites for Restoration.

The vessel to be placed on high blocks, in a dry dock, or upon ways, and proper stages to be made, so that the rivets and plates of keel, and flat of bottom, may be thoroughly examined; the whole of the ceiling or lining inside to be entirely removed; coal bunkers of steam vessels to be cleared, the boilers to be taken out and also the engines (unless it shall be shown by previous survey that the removal is unnecessary), so as to expose the whole of the frames, stringers, hooks, floor plates, keelsons, engine and boiler bearers, ends of beams, water-tight bulkheads, rivets, and inner surface of the plating, to view; the hold to be cleared; all oxidation to be removed by being cut or beaten off the several parts above-named, also from the outside plating, rivets, keel, stem, sternpost, and rudder, so as to completely lay bare all the surfaces of iron; the plankshears and waterways, if of wood, to be entirely removed, and also the flat of upper deck, except under special circumstances, to be sanctioned by the Committee in each case; and when the vessel is so prepared, the Surveyors are to examine and report the condition and thickness of all the parts of iron above-named, also the condition of the beams and their fastenings; and upon the owner consenting to remove such parts as may be found defective, or objected to, or less in thickness than hereinafter admitted for repairing such vessel, and replace them with proper materials equal in quality and substance to that required in the Table G for

the nine years' grade in those originally classed 12 A, and equal in quality and substance to that required in the Table G for the six years' grade in vessels originally classed 9 A or 6 A, such vessel, upon the repairs and efficiency being reported to the Committee, may be restored to the letter A, for a term of years not exceeding two-thirds the number of years assigned originally, subject to occasional survey.

Iron ships, which have been restored under the foregoing rule, shall be entitled to continuation thereon, subject to the same conditions of survey and examination as are prescribed for ships proposed to be continued at the expiration of the period first assigned to them; but in like manner, the term of such extended continuance to be limited to a period not exceeding one-half the number of years for which the ships may respectively have been restored, without reference to the period originally assigned to them.

20. On the expiration of the terms assigned to ships classed A, they will be liable to lapse (like ships built of wood).

21. One year will be added to the character of all ships of the A class built under a roof which shall project at each end beyond the length, and on each side beyond the breadth, a quantity equal to one-half the breadth of the vessel.

22. Vessels not surveyed while building, will be classed A from year to year only, but for a period not exceeding Six Years.

IRON SHIPS ALREADY CLASSED A 1.

Iron ships built prior to the promulgation of the Rules will be allowed to remain in the Register book classed A 1 from year to year, *subject to annual survey*, until the expiration of Six Years from their date of build, and then be examined to determine the period to which they may be entitled under the rules; and if, on such examination, it shall be found the ships are entitled to the 9 or 12 years' grade, it will be in the option of the owners either to adopt such period respectively, or continue the vessel A 1 from year to year, as above, until the expiration of the extended period; but if it shall be found that the term of years for which a vessel would have been entitled to remain on the A character has expired, she will be classed ΔE , if entitled thereto, unless specially surveyed for continuation or for restoration.

The Rules for the building of Iron Ships having been now for some time before the public, and the principles upon which they are framed having

the nine years' grade in those originally classed 12 A, and equal in quality and substance to that required in the Table G for the six years' grade in vessels originally classed 9 A or 6 A, such vessel, upon the repairs and efficiency being reported to the Committee, may be restored to the letter A, for a term of years not exceeding two-thirds the number of years assigned originally, subject to occasional survey.

Iron ships, which have been restored under the foregoing rule, shall be entitled to continuation thereon, subject to the same conditions of survey and examination as are prescribed for ships proposed to be continued at the expiration of the period first assigned to them; but in like manner, the term of such extended continuance to be limited to a period not exceeding one-half the number of years for which the ships may respectively have been restored, without reference to the period originally assigned to them.

20. On the expiration of the terms assigned to ships classed A, they will be liable to lapse (like ships built of wood).

21. One year will be added to the character of all ships of the A class built under a roof which shall project at each end beyond the length, and on each side beyond the breadth, a quantity equal to one-half the breadth of the vessel.

22. Vessels not surveyed while building, will be classed A from year to year only, but for a period not exceeding Six Years.

IRON SHIPS ALREADY CLASSED A 1.

Iron ships built prior to the promulgation of the Rules will be allowed to remain in the Register book classed A 1 from year to year, *subject to annual survey*, until the expiration of Six Years from their date of build, and then be examined to determine the period to which they may be entitled under the rules; and if, on such examination, it shall be found the ships are entitled to the 9 or 12 years' grade, it will be in the option of the owners either to adopt such period respectively, or continue the vessel A 1 from year to year, as above, until the expiration of the extended period; but if it shall be found that the term of years for which a vessel would have been entitled to remain on the A character has expired, she will be classed AE , if entitled thereto, unless specially surveyed for continuation or for restoration.

The Rules for the building of Iron Ships having been now for some time before the public, and the principles upon which they are framed having

been found generally to work satisfactorily, and the Committee having very carefully revised the several regulations, especially in respect to the thickness of the plating and the extension of double rivetting, beg respectfully to urge upon the builders of iron ships the necessity of a close approximation to the Rules, and a conformity to the Table of Dimensions, so as to justify the Committee in granting the character A for the respective periods for which the ships are built.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

No. 2, White Lion Court, Cornhill.

London, 21st May, 1857.

Number	Length in feet	BAGGAGE PER CUBIC FEET		
		100 cu ft	200 cu ft	300 cu ft
001	12	8	18	28
002	12	8	18	28
003	8	12	28	38
004	8	12	28	38
005	12	8	18	28
006	12	8	18	28
007	12	8	18	28
008	12	8	18	28
009	12	8	18	28
010	12	8	18	28
011	4	12	18	28

001	100	50	25	12.5	6.25	3.125	1.5625
002	200	100	50	25	12.5	6.25	3.125
003	400	200	100	50	25	12.5	6.25
004	800	400	200	100	50	25	12.5
005	1600	800	400	200	100	50	25
006	3200	1600	800	400	200	100	50
007	6400	3200	1600	800	400	200	100
008	12800	6400	3200	1600	800	400	200
009	25600	12800	6400	3200	1600	800	400
1000	51200	25600	12800	6400	3200	1600	800
1001	102400	51200	25600	12800	6400	3200	1600

been found generally to work satisfactorily, and the Committee having very carefully revised the several regulations, especially in respect to the thickness of the plating and the extension of double rivetting, beg respectfully to urge upon the builders of iron ships the necessity of a close approximation to the Rules, and a conformity to the Table of Dimensions, so as to justify the Committee in granting the character A for the respective periods for which the ships are built.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

No. 2, White Lion Court, Cornhill.

London, 21st May, 1857.

TABLE G.
IRON SHIPS.—TABLE OF MINIMUM DIMENSIONS OF FRAMES, PLATING, RIVETS, KEELS, KEELSONS, STEMS, STERN POSTS, FLOOR PLATES, BEAMS, BULKHEADS, STRINGERS, &c.

Gross Tonnage.	Keel, Stem, and Stern Post for all Grades.*	Distance of Frames or Ribs from Moulding edge to Moulding edge all fore and aft for all Grades.	FRAMES OR RIBS. Dimensions of Reversed Angle Iron on Frames and Bulk- heads for all Grades.	THICKNESS OF PLATES.†												BULKHEADS Thickness of Plates throughout for all Grades	Dimensions of Angle Iron on Beam Stringers or Keelsons for all Grades.	RUDDER for all Grades.		Thickness of Wood Flat of Upper Deck.	Gross Tonnage.	
				Garboard Strakes.			From the Garboard to the upper part of Bilge, and the Sheerstrakes.			From Bilge to Sheerstrakes, thickness of Beams, & Stringer Plates upon Beam Ends, Hooks, Crutches, ||Floor Plates, and Keelsons.			Years.			Years.						
				Years.			12	9	6	12	9	6	12	9	6	12	9	6	12	9	6	
100	5½ × 1½	18	inches. $\frac{1}{6} \times 2\frac{1}{2} \times 2\frac{1}{2}$	inches. $\frac{5}{6} \times 2\frac{1}{4} \times 2\frac{1}{4}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{5}{16}$	inches. $\frac{6}{16}$	inches. $\frac{5}{16}$	inches. $\frac{5}{16}$	inches. $\frac{4}{16}$	inches. $\frac{6}{16} \times 2\frac{1}{2} \times 2\frac{1}{2}$	inches. $2\frac{1}{2}$	inches. 2	inches. $2\frac{1}{2}$	100			
200	6 × 2	18	inches. $\frac{6}{16} \times 3 \times 2\frac{1}{2}$	inches. $\frac{5}{6} \times 2\frac{1}{4} \times 2\frac{1}{4}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{5}{16}$	inches. $\frac{4}{16}$	inches. $\frac{6}{16} \times 3 \times 2\frac{1}{2}$	inches. 3	inches. 2	inches. $2\frac{1}{2}$	200			
300	6½ × 2½	18	inches. $\frac{6}{16} \times 3\frac{1}{4} \times 2\frac{3}{4}$	inches. $\frac{5}{6} \times 2\frac{1}{2} \times 2\frac{1}{2}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{5}{16}$	inches. $\frac{6}{16} \times 3\frac{1}{2} \times 2\frac{3}{4}$	inches. $3\frac{1}{4}$	inches. $2\frac{1}{4}$	inches. 3	300			
400	6½ × 2½	18	inches. $\frac{7}{16} \times 3\frac{1}{2} \times 2\frac{3}{4}$	inches. $\frac{6}{16} \times 2\frac{3}{4} \times 2\frac{1}{2}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{5}{16}$	inches. $\frac{6}{16} \times 4 \times 3$	inches. $3\frac{1}{2}$	inches. $2\frac{1}{2}$	inches. 3	400			
500	6¾ × 2½	18	inches. $\frac{7}{16} \times 3\frac{3}{4} \times 2\frac{3}{4}$	inches. $\frac{6}{16} \times 3 \times 2\frac{1}{2}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{7}{16} \times 4\frac{1}{4} \times 3\frac{1}{4}$	inches. $3\frac{3}{4}$	inches. $2\frac{3}{4}$	inches. $3\frac{1}{2}$	500			
600	7 × 2¾	18	inches. $\frac{7}{16} \times 4 \times 3$	inches. $\frac{6}{16} \times 3 \times 2\frac{3}{4}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{7}{16}$	inches. $\frac{6}{16}$	inches. $\frac{7}{16} \times 4\frac{1}{2} \times 3\frac{1}{2}$	inches. $4\frac{1}{4}$	inches. $2\frac{3}{4}$	inches. $3\frac{1}{2}$	600			
700	7¼ × 2¾	18	inches. $\frac{8}{16} \times 4\frac{1}{4} \times 3$	inches. $\frac{7}{16} \times 3 \times 2\frac{3}{4}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{6}{16}$	inches. $\frac{8}{16} \times 4\frac{3}{4} \times 3\frac{3}{4}$	inches. $4\frac{1}{2}$	inches. 3	inches. $3\frac{1}{2}$	700			
800	7½ × 3	18	inches. $\frac{8}{16} \times 4\frac{1}{2} \times 3$	inches. $\frac{7}{16} \times 3 \times 3$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{8}{16}$	inches. $\frac{6}{16}$	inches. $\frac{8}{16} \times 5 \times 4$	inches. $4\frac{1}{2}$	inches. 3	inches. $3\frac{1}{2}$	800			
900	8 × 3	18	inches. $\frac{8}{16} \times 4\frac{3}{4} \times 3$	inches. $\frac{7}{16} \times 3\frac{1}{4} \times 3$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{7}{16}$	inches. $\frac{9}{16} \times 5 \times 4\frac{1}{4}$	inches. $4\frac{3}{4}$	inches. 3	inches. $3\frac{1}{2}$	900			
1000	8½ × 3	18	inches. $\frac{9}{16} \times 5 \times 3$	inches. $\frac{8}{16} \times 3\frac{1}{2} \times 3$	inches. $\frac{14}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{7}{16}$	inches. $\frac{9}{16} \times 5 \times 4\frac{1}{2}$	inches. 5	inches. 3	inches. 4	1000		
1200	9 × 3	18	inches. $\frac{9}{16} \times 5 \times 3\frac{1}{2}$	inches. $\frac{8}{16} \times 3\frac{1}{2} \times 3$	inches. $\frac{15}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{9}{16}$	inches. $\frac{7}{16}$	inches. $\frac{9}{16} \times 5\frac{1}{2} \times 4\frac{1}{2}$	inches. $5\frac{1}{2}$	inches. $3\frac{1}{4}$	inches. 4	1200		
1500	10 × 3	18	inches. $\frac{10}{16} \times 5\frac{1}{2} \times 3\frac{1}{2}$	inches. $\frac{9}{16} \times 4 \times 3\frac{1}{2}$	inches. $\frac{16}{16}$	inches. $\frac{14}{16}$	inches. $\frac{13}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{8}{16}$	inches. $\frac{9}{16} \times 6 \times 5$	inches. $5\frac{1}{2}$	inches. $3\frac{1}{2}$	inches. 4	1500		
2000	12 × 3	18	inches. $\frac{10}{16} \times 6 \times 4$	inches. $\frac{9}{16} \times 4\frac{1}{2} \times 3\frac{1}{2}$	inches. $\frac{17}{16}$	inches. $\frac{15}{16}$	inches. $\frac{14}{16}$	inches. $\frac{15}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{10}{16}$	inches. $\frac{8}{16}$	inches. $\frac{10}{16} \times 6\frac{1}{2} \times 5\frac{1}{2}$	inches. 6	inches. $3\frac{3}{4}$	inches. 4	2000		
2500	12 × 3½	18	inches. $\frac{11}{16} \times 6\frac{1}{4} \times 4$	inches. $\frac{10}{16} \times 4\frac{1}{2} \times 3\frac{1}{2}$	inches. $\frac{17}{16}$	inches. $\frac{16}{16}$	inches. $\frac{15}{16}$	inches. $\frac{15}{16}$	inches. $\frac{14}{16}$	inches. $\frac{13}{16}$	inches. $\frac{14}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{8}{16}$	inches. $\frac{10}{16} \times 6\frac{1}{2} \times 5\frac{1}{2}$	inches. $6\frac{1}{2}$	inches. 4	inches. 4	2500		
3000	12 × 3½	18	inches. $\frac{11}{16} \times 6\frac{1}{2} \times 4$	inches. $\frac{10}{16} \times 4\frac{1}{2} \times 3\frac{1}{2}$	inches. $\frac{17}{16}$	inches. $\frac{16}{16}$	inches. $\frac{15}{16}$	inches. $\frac{15}{16}$	inches. $\frac{14}{16}$	inches. $\frac{13}{16}$	inches. $\frac{14}{16}$	inches. $\frac{13}{16}$	inches. $\frac{12}{16}$	inches. $\frac{11}{16}$	inches. $\frac{9}{16}$	inches. $\frac{10}{16} \times 6\frac{1}{2} \times 5\frac{1}{2}$	inches. $6\frac{3}{4}$	inches. $4\frac{1}{2}$	inches. 4	3000		

RIVETS.			$\frac{5}{8}$ of an Inch.			$\frac{3}{4}$ of an Inch.			$\$
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No. 1.—A TABLE exhibiting the different Descriptions of TIMBER, of good
to the several Terms of Years appointed

PARTS OF THE FRAME OF A VESSEL.	TWELVE YEARS.	TEN YEARS.	NINE YEARS.	EIGHT YEARS.
OORS	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture, Cuba Sabicu, Pen- cil Cedar, Adriatic, Spa- nish and French Oak, S. American and Eu- ropean Hard Wood.	The same as in the pre- ceding Class, and admit Red Cedar, Angelly and Venatica. Other Continental White Oak. Spanish Chesnut, Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut.
FUTTOCKS	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture, Cuba Sabicu, Pen- cil Cedar, Adriatic, Spa- nish, and French Oak.	The same as in the pre- ceding Class, and admit Red Cedar, Angelly and Venatica. Other Continental White Oak. Spanish Chesnut, Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut.
FUTTOCKS..	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.
FUTTOCKS.. and OP TIMBERS	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.
MAIN and RIDER EELSONS....	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture—Cuba Sabicu Pencil & Red Cedar Angelly & Venatica Adriatic, Spanish, & French Oak.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Larch Hackmatack Tamarac Juniper.
TERM	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard tex- ture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.
NIGHTHEADS AWSE TIM- BERS.....	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding class, and admit Mahogany of hard tex- ture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.
PRON and EADWOOD ..	English, African, and Live Oak—East-India Teak—Morung Saul— Greenheart — Morra — Iron Bark—Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.
EAMS	English, African, and Live Oak—East-India Teak—Morung Saul— Greenheart — Morra — Iron Bark—Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.
DOOKS	English, African, and Live Oak—East-India Teak—Morung Saul— Greenheart — Morra — Iron Bark—Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.
NEES	English, African, and Live Oak—East-India Teak—Morung Saul— Greenheart — Morra — Iron Bark—Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding class, and admit Adriatic, Spanish, & French Oak Red Cedar, Angelly and Venatica.	The same as in the pre- ceding Class.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut, Stringy Bark, Blue Gum and Pitch Pine.

This Table applies to the Deadwood so far as regards the material to be used from the height of two feet above the rabbet of
keel.

† Live Oak and Red Cedar admitted alternately in timbers of the frame for 10 A.

If the First Futtocks run up above the Light Watermark, the use of Foreign White Oak is allowed for the 7 years' grade only.

MEM.—The word "English" includes Timber the growth of the United Kingdom.

Quality, to be used in the TIMBERING of SHIPS, as the same will be applied
for Ships to remain on the Character A.

SEVEN YEARS.	SIX YEARS.	FIVE YEARS.	FOUR YEARS.	PARTS OF THE FRAME OF A VESSEL.
The same as in the preceding Class, and admit Larch, Hackmatack, Tamarac, Juniper, Pitch Pine, Second-hand English or African Oak, or East-India Teak English Ash.	The same as in the preceding Class, and admit Cowdie ¶ American Rock Elm.	The same as in the preceding Class, and admit Baltic & Amer. Red Pine Foreign Ash European & Amer. Grey Elm ¶ Black Birch Spruce Fir ¶ English Beech.	The same as in the preceding Class.	FLOORS.
The same as in the preceding Class, and admit Larch—Hackmatack Tamarac—Juniper Pitch Pine Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit Cowdie English Ash American Rock Elm.	The same as in the preceding Class, and admit Baltic & Amer. Red Pine Foreign Ash European and American Grey Elm **Black Birch Spruce Fir.	The same as in the preceding Class, and admit English Beech.	1st FUTTOCKS.
The same as in the preceding Class, and admit Other Continental White Oak, Spanish Chestnut Stringy Bark, Blue Gum North Amer. White Oak Amer. Sweet Chestnut Larch—Hackmatack Tamarac—Juniper Pitch Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak Cowdie.	The same as in the preceding Class, and admit Baltic and American Red Pine English Ash American Rock Elm.	The same as in the preceding Class, and admit Foreign Ash European and American Grey Elm Black Birch Spruce Fir.	2d FUTTOCKS.
The same as in the preceding Class, and admit Other Continental White Oak, Span. Ches., Stringy Bark, BlueGum, N. Amer. White Oak, Amer. Sweet Chestnut, Larch, Hackmatack, Tamarac, Juniper Pitch Pine, Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit English Ash American Rock Elm.	The same as in the preceding Class, and admit Foreign Ash European and American Grey Elm Black Birch Spruce Fir Yellow Pine.	3d FUTTOCKS and TOP TIMBERS.
The same as in the preceding Class, and admit Cowdie Baltic and American Red Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak American Rock Elm.	The same as in the preceding Class, and admit English Ash Foreign Ash.	The same as in the preceding Class, and admit European and American Grey Elm Black Birch Spruce Fir English Beech Yellow Pine.	MAIN and RIDER KEELSONS.
The same as in the preceding Class, and admit Other Continental W. Oak Span. Ches., Stringy Bark Blue Gum, N. Amer. W. Oak, Amer. Sweet Ches. Larch, Hackmatack, Tamarac, Juniper, P. Pine.	The same as in the preceding Class, and admit Cowdie.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak Baltic and American Red Pine American Rock Elm.	The same as in the preceding Class, and admit English Ash—Foreign Ash European and American Grey Elm Black Birch Spruce Fir Yellow Pine.	STEM and STERN POST.
The same as in the preceding Class, and admit Other Continental White Oak, Spanish Chestnut, Stringy Bark, Blue Gum N. Amer. W. Oak, Amer. Sweet Chestnut, Larch Hackmatack, Tamarac Juniper, Pitch Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak Cowdie.	The same as in the preceding Class, and admit Baltic and American Red Pine American Rock Elm.	The same as in the preceding Class, and admit English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir Yellow Pine.	TRANSOMS KNIGHTTHEAI HAWSE TIMBERS APRON and *DEADWOOD.
The same as in the preceding Class, and admit North Amer. White Oak Amer. Sweet Chestnut Larch—Hackmatack Tamarac—Juniper Cowdie Baltic & Amer Red Pine.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit English Ash Foreign Ash American Rock Elm European and American Grey Elm.	The same as in the preceding Class, and admit Black Birch Spruce Fir Yellow Pine.	BEAMS and HOOKS.
The same as in the preceding Class, and admit North Amer. White Oak Amer. Sweet Chestnut Larch—Hackmatack Tamarac—Juniper Cowdie Baltic & Amer. Red Pine Spruce Fir.	The same as in the preceding Class, and admit Second-hand English or African Oak, or East-India Teak.	The same as in the preceding Class, and admit English Ash Foreign Ash American Rock Elm European and American Grey Elm.	The same as in the preceding Class, and admit Black Birch Yellow Pine.	KNEES.

¶ Black Birch, Beech, American Rock Elm, and Cowdie allowed for FLOORS in Midships, to an extent not exceeding one-half the entire length of the keel in ships of the Seven Years' Grade.

** Black Birch allowed for First Futtocks amidships, to the same extent in Ships of the Six Years' Grade. White Cedar allowed for Third Futtocks and Optimbers in ships of the Seven Years' Grade.

No. 2.—A TABLE exhibiting the different Descriptions of TIMBER, of good

applicable to the several Terms of Years appointed

PARTS OF THE OUTSIDE OF A VESSEL.	TWELVE YEARS.	TEN YEARS.	NINE YEARS.	EIGHT YEARS.
KEEL to the 1st FUTTOCK HEADS.....	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, Iron Bark, Mahogany of hard texture, Cuba Sabicu, Pencil Cedar, Adriatic, Spanish, and French Oak, Red Cedar, Angelly and Venatica, other Continental White Oak, Spanish Chesnut, Stringy Bark and Blue Gum, North American White Oak, American Sweet Chesnut, Larch, Hackmatack, Tamarac, Juniper, Pitch Pine, § American Rock Elm, § European and American Grey Elm, § English Beech.	The same as in the preceding Class, and admit Cowdie English Ash Foreign Ash Black Birch.	The same as in the preceding Class, and admit Baltic and American Red Pine.	The same as in the preceding Class.
2d FUTTOCK HEADS..... to LIGHT WATER MARK	English, African, and Live Oak, East-India Teak, Morung Saul, Greenheart, Morra, Iron Bark, Mahogany of hard texture, Cuba Sabicu, Pencil Cedar, Adriatic, Spanish, and French Oak, Red Cedar, Angelly and Venatica, other Continental White Oak, Spanish Chesnut, Stringy Bark and Blue Gum, Pitch Pine.	The same as in the preceding Class, and admit North American White Oak American Sweet Chesnut Larch Hackmatack Tamarac Juniper.	The same as in the preceding Class, and admit Cowdie Baltic and American Red Pine.	The same as in the preceding Class, and admit American Rock Elm European and American Grey Elm English Beech.
LIGHT WATER MARK	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark Red Cedar Angelly and Venatica.	The same as in the preceding Class, and admit Mahogany of hard texture—Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark, Blue Gum and Pitch Pine.	The same as in the preceding Class, and admit N. American White Oak Amer. Sweet Chesnut Larch—Hackmatack Tamarac Juniper Cowdie Baltic & Amer. Red Pine
VALES	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the preceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar Red Cedar Angelly and Venatica.	The same as in the preceding Class, and admit Adriatic, Spanish, and French Oak Pitch Pine.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark, Blue Gum and Pitch Pine.
BLACKSTRAKES TOPSIDES..... and HEERSTRAKES	English African } Oak Live East-India Teak Morung Saul Greenheart Morra—Iron Bark.	The same as in the preceding Class, and admit Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica Larch—Hackmatack Tamarac Juniper Pitch Pine Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the preceding Class.
UPPER DECK WATERWAYS PIRKETTING and LANKSHEERS.	English African } Oak Live East-India Teak Morung Saul Greenheart Morra—Iron Bark.	The same as in the preceding Class, and admit Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica Larch—Hackmatack Tamarac Juniper Pitch Pine Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the preceding Class.

§ The use of Elm and Beech, in Ships above the EIGHT YEARS' grade, to be restricted to a height from the lower part of the Keel, of one third of the internal depth of the Ship measured, in midships, from the top of the Limber Strake to the top of the upper Deck Beams.

Quality, to be used in the OUTSIDE PLANKING of SHIPS, as the same will be
for Ships to remain on the Character A.

SEVEN YEARS.	SIX YEARS.	FIVE YEARS.	FOUR YEARS.	PARTS OF THE OUTSIDE OF A VESSEL.
The same as in the preceding Class.	The same as in the preceding Class, and admit Spruce Fir Yellow Pine.	The same as in the preceding Class.	The same as in the preceding Class.	KEEL to the 1st FUTTOCK HEADS.
The same as in the preceding Class, and admit English Ash Foreign Ash Black Birch.	The same as in the preceding Class.	The same as in the preceding Class, and admit Spruce Fir Yellow Pine.	The same as in the preceding Class.	1st FUTTOCK HEADS to LIGHT WATER MARK.
The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm.	The same as in the preceding Class, and admit European and American Grey Elm Yellow Pine.	The same as in the preceding Class, and admit English Ash Foreign Ash Black Birch Spruce Fir English Beech.	LIGHT WATER MARK to WALES.
The same as in the preceding Class, and admit North Amer. White Oak American Sweet Chesnut Larch -Hackmatack Tamarac Juniper Cowdie Baltic & Amer. Red Pine.	The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm Yellow Pine.	The same as in the preceding Class, and admit European and American Grey Elm Black Birch Spruce Fir.	WALES BLACKSTRAK TOPSIDES and SHEERSTRAK
The same as in the preceding Class, and admit North Amer. White Oak American Sweet Chesnut.	The same as in the preceding Class.	The same as in the preceding Class, and admit Second-hand English or African Oak East-India Teak American Rock Elm †Yellow Pine.	The same as in the preceding Class, and admit European and American Grey Elm Black Birch Spruce Fir.	UPPER DECK WATERWAY SPIRKETTING and PLANKSHEER

† Yellow Pine allowed for Waterways of Upper Deck in Ships of the SEVEN YEARS' grade, if properly fastened, as prescribed in Table B, and provided the Beams are well secured, independently of the Waterways.

M.E.M.—The word "English," includes Timber the growth of the United Kingdom.

For relaxation in favour of Steam Vessels, *vide* Rules, page 29.

No. 3.—A TABLE exhibiting the different Descriptions of TIMBER, of good
applicable to the several Terms of Years

INSIDE PLANK.	TWELVE YEARS.	TEN YEARS.	NINE YEARS.	EIGHT YEARS.
LIMBER STRAKES and BILGE STRAKES.	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark Mahogany of hard texture Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Pitch Pine.	The same as in the pre- ceding Class.
CEILING, OWER HOLD, and BETWEEN DECKS.	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark Mahogany of hard texture Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Pitch Pine.	The same as in the pre- ceding Class, and admit Larch Hackmatack Tamarac Juniper Cowdie Baltic and American Red Pine.
HELF PIECES CLAMPS and LOWER DECK WATERWAY.	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark Mahogany of hard texture Cuba Sabicu Pencil Cedar Adriatic, Spanish, and French Oak Red Cedar Angelly and Venatica.	The same as in the pre- ceding Class, and admit Other Continental White Oak Spanish Chesnut Stringy Bark and Blue Gum.	The same as in the pre- ceding Class, and admit North American White Oak American Sweet Chesnut Pitch Pine.	The same as in the pre- ceding Class, and admit Larch Hackmatack Tamarac Juniper Cowdie Baltic and American Red Pine.
RUDDER and WINDLASS MAIN PIECES.	English African } Oak Live East-India Teak Morung Saul Greenheart Morra Iron Bark.	The same as in the pre- ceding Class, and admit Mahogany of hard texture Cuba Sabicu Pencil Cedar.	The same as in the pre- ceding Class, and admit Adriatic, Spanish, and French Oak.	The same as in the pre- ceding Class.

The materials marked thus || under the head of " Rudders and Windlass " allowed in ships of 300 Tons and under only.

Quality, to be used in the INSIDE PLANKING of SHIPS, as the same will be
for Ships to remain on the Character A.

SEVEN YEARS.	SIX YEARS.	FIVE YEARS.	FOUR YEARS.	INSIDE PLANK.
The same as in the preceding Class, and admit Larch Hackmatack Tamarac Juniper Cowdie Baltic and American Red Pine American Rock Elm.	The same as in the preceding Class.	The same as in the preceding Class, and admit Second-hand English or African Oak or East- India Teak English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir English Beech Yellow Pine.	The same as in the preceding Class.	LIMBER STRAKES and BILGE STRAKES.
The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm.	The same as in the preceding Class, and admit Second-hand English or African Oak or East-India Teak English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir English Beech Yellow Pine.	The same as in the preceding Class.	CEILING, LOWER HULL and BETWEEN DECKS.
The same as in the preceding Class.	The same as in the preceding Class, and admit American Rock Elm.	The same as in the preceding Class, and admit Second-hand English or African Oak or Teak and Yellow Pine.	The same as in the preceding Class, and admit English Ash Foreign Ash European and American Grey Elm Black Birch Spruce Fir English Beech.	SHELF PIECE CLAMPS and LOWER DECK WATERWAY
The same as in the preceding Class, and admit Other Continental White Oak, Spanish Chestnut Stringy Bark, Blue Gum North American White Oak and American Sweet Chestnut ||Larch, ||Hackmatack ||Tamarac, ||Juniper, ||Pitch Pine.	The same as in the preceding Class.	The same as in the preceding Classes, and admit Second-hand English or African Oak or East- India Teak Baltic and American Red Pine. ||English Ash.	The same as in the preceding classes, and admit American Rock Elm ||Black Birch ||Spruce Fir ||English Beech.	RUDDER and WINDLASS MAIN PIECES

MEM.—The word " English " includes Timber the growth of the United Kingdom.
For relaxation in favour of Steam Vessels, *vide* Rules, page 27.

No. 4.

FORM OF THE REPORT OF ORIGINAL SURVEY.

No. — Survey held at — Date — 18 — on the — Master —
 Tonnage { Old — Built at — When built — Launched —
 New —
 By whom built — Owners — Port belonging to — Destined Voyage —
 If Surveyed while building, Afloat, or in Dry Dock —

Length aloft	Feet.	Inches.	Extreme Breadth outside	Feet.	Inches.	Depth of Hold	Feet.	Inches.
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SCANTLINGS OF TIMBER.

	SIDED.	MOULDED.	OUTSIDE.	THICKNESS OF PLANK.	INSIDE.
Timber and Space	Inches. In Ship.	Required per Rule.	Garboard Strakes.....	Inches. In Ship. Required per Rule.	Limber Strakes
Floors	Required per Rule.		Garboard to Bilge		Bilge Planks
1st Foothooks	Inches. In Ship.	Required per Rule.	Bilge Planks		Ceiling in Flat.....
2d Ditto	Inches. In Ship.	Required per Rule.	Bilge to Wales		Ditto Bilge to Clamp
3d Ditto	Inches. In Ship.	Required per Rule.	Wales		Hold Beam Clamps..
Top Timbers	Required per Rule.		Topsides		Deck Beam Ditto ...
Deck Beams No. { Average Space			Sheerstrakes		Ceiling 'twixt Decks
Deck Beams, length amid-ships			Plankshears		Hold Beam Shelfs ..
Hold Beams No. { Average Space			Waterways—		Deck Beam ditto.....
Hold Beams, length amid-ships			Upper Deck		
Keel			Lower Deck		
Scarps of Ditto			Upper Deck		
Keelsons					
Scarps of Ditto					

SIZE OF BOLTS IN FASTENINGS, DISTINGUISHING WHETHER COPPER OR IRON; ALSO OF TREENAILS.

	Copper or Iron required per Rule	Inches in Ship.	Copper or Iron required per Rule	Inches in Ship.
Heel-Knee and Deadwood abaft			Butt End Bolts	
Scarps of Keel	No.		Pintles of the Rudder	
Keelson Bolts through Keel at each Floor			Hold Beam Bolts { Waterway in Knees	
Bolts through Heels of Timbers against Deadwood			Deck Beam Bolts { Waterway in Knees	
Transoms and throats of Hooks			Nails or Bolts in Flat of Deck	
Arms of Hooks			Treenails.....Inches.....	
Bolts through Bilge and Limber Strakes, or Thickstuff over Double Floors				

TIMBERING.—The Space between the Floor Timbers and Lower Foothooks is — Inches.
 The Space between the Top Timbers is — Inches.

The Floors consist of — The First Foothooks of — Timber.

The Second Foothooks of — The Third Foothooks and Top Timbers of —

The Shifts of the first and second Foothooks are not less than —

[N.B. When less than prescribed by the Rule, state how many.]

The rest of the Shifts of the Frame are —

The Frame is — squared from the first Foothook Heads upwards, and — free from sap, and from thence downwards the Frame is —

The alternate Frames are — bolted together to the Gunwale.

[N.B. If not, state how bolted.]

The Butts of the Timbers are — close together; their thickness not less than — of the entire moulding at that place.

The frame is — chocked with — Butt at each end of the chock. The Main piece of Rudder is —

The Main Keelson is _____ and _____ free from all defects. The Main piece of Windlass is _____

The Stem and Stern Post consist of _____ The Transoms, Aprons, Knight Heads, and Hawse Timbers of _____ Deadwood, of _____ and are _____ free from all defects.

The Deck and Hold Beams consist of _____ The Breasthooks of _____ The Knees of _____
PLANKING OUTSIDE.—From the Keel to the Height defined in Note to Table A, or to the First Foothook Heads the Plank is _____

From the above-named height to the Light Water Mark _____

From the Light Water Mark to the Wales _____

The Wales and Blackstrakes are _____ The Topsides _____

The Sheerstrakes and Plankshears _____ The Waterways { Upper Deck _____
Lower Deck _____

The Decks _____ State of _____

The Shifts of the Planking are not less than _____ feet _____ inches. [N.B.—If less than prescribed by the Rule, state whether general or partial, and if partial, in what part of the Ship.]

The Planking is wrought _____ between, and without step-butting.

PLANKING INSIDE.—The Limber-strakes and Bilge-strakes are _____

The Ceiling, Lower Hold, and between Decks _____ Shelf Pieces and Clamps _____

FASTENINGS.—To Hold Beams _____

Deck Beams _____

Number of Breasthooks _____ Pointers _____ Crutches _____

Butts End Bolts are of _____ in the Bottom, and _____ Bolt in each Butt End through and clenched.

Bilge and Limber Strakes _____ bolted through and clenched. Treenails of _____ How made _____

Thickstuff over Double Floors _____ bolted through and clenched. General Quality of Workmanship _____

We certify that the above is a correct description of the several particulars therein given

Builder's Signature _____ Surveyor's Signature _____

Her Masts, Yards, &c. are in _____ condition, and sufficient in size and length.

She has SAILS.

CABLES, &c.

ANCHORS,

No.		Fathoms.	Inches.	and their Weights.	No.	Weight.
Fore Sails,	Chain			Bower		
Fore Top Sails,	Hempen Stream Cable			Stream		
Fore Topmast Stay Sails,	Hawser			Kedge.....		
Main Sails,	Towlines.....					
Main Top Sails,	Warp					
and	All of — quality.					

Her Standing and Running Rigging _____ sufficient in size and _____ in quality.

She has _____ Long Boat and _____ The present state of the Windlass is _____

Capstan _____ Rudder _____ Pumps _____

General Remarks and Statement and Date of Repairs, if any.

Dates of Surveys { 1st. When the Frame is completed _____

held while building, { 2nd. When the Beams are put in, &c. _____

as per Section 35. { 3rd. When completed, and before the plank be painted or payed _____

Present condition of Caulking of Bottom, _____ Deck, _____ and Waterways _____

If Sheathed, Doubled, Felted, or Coppered _____ When last done _____

I am of opinion this Vessel should be classed _____

The Amount of the Fee £ : : is received by me,

Special £ : : :

Certificate £ : : :

Committee's Minute —— 18—

Character assigned ——

IRON SHIPS.

No _____ Survey held at _____ Date _____ 18____ on the _____ Master _____
Tonnage—Gross _____ Engine Room _____ Register _____ Built at _____
When built _____ By whom built _____ Owners _____ Port belonging to _____
Destined Voyage _____ If Surveyed Afloat or in Dry Dock _____

	Feet.	Inches.			Horse.
	Power of Engines				
Length aloft					
Extreme Breadth					
Depth from top of Upper Deck Beam to top of Floor					
Distance of Frames or Ribs from moulding edge to moulding edge, all fore and aft.....	Inches in Ship.	Inches Required per Rule.			
Floors, Size of Angle Iron and No. at bottom of Floor plate depth and thickness of Floor Plate at mid line Do. at bilge keelson	In Ship.	Required per Rule.			
Size of Reversed Angle Iron, and No. at top of Floor Plate	Inches	Inches	10ths.		
Frames, Size of Angle Iron, single or double					Description of Iron.
" " Reversed Iron, if to every frame or every frame Beams, Deck (No.) double Angle Iron or Bulb Iron with double Angle Iron on top.....					Garboard Plates, thickness
" " depth and thickness of Plate amid- ships					From Garboard to upper part of Bilge
" " double or single Angle Iron, on lower edge.....					From upper part of Bilge to Sheer- strakes
" " average space be- tween					Sheerstrakes.....
" " if wood (No.) sided and moulded...					Breadth and thick- ness of Butt Straps to outside plating
" Hold, or Lower Deck, (No.) double Angle Iron or Bulb Iron with double Angle Iron on top.....					Plankshears
" " depth and thickness of Plate amid- ships					Gunwale Plate or Stringer on ends of Upper Deck Beams
" " double or single Angle Iron, on lower edge					Angle Iron on ditto Waterway
" " average space be- tween					Deck
" " if wood (No.) sided and moulded...					Ceiling in Hold..
" Paddle, wood, sided and moulded, or if Iron, size of Plate Engine					Ceiling betwixt Decks.....
Keelson, wood, sided and moulded, Iron size of Plate, if Box, give sketch and dimensions					Beam Clamps
					" Shelf
					" Stringerplates on ends of hold or lower deck Beams
					Ceiling between Decks
					Stringer or Tie Plates outside Hatchways
					Deck Beam Clamps " " Shelf..
					Stringers in Hold Deck, Lower.....
					Deck, Upper, how fastened to Beams
					Inches Inches 10ths.
					Required per Ru

Transoms, material —— or, if none, in what manner compensated for.

Knight-heads „ } are they free from defects ?
Hawse Timbers „ }

Bulkheads, No. —— Thickness of ——

„ how secured to the sides of the ship ——

„ size of vertical angle iron and their distance apart ——

The Frames or Ribs extend in one length from —— to —— riveted through plates with — in. rivets, about —— apart.

The reverse angle irons on the floors extend in one length across the middle line from —— to ——
„ „ „ on the frames „ „ „ from —— to ——

Keelson, how are the various lengths of plates or angle irons connected ?

Plates, Garboard, double or single riveted to keel and at upper edge, with rivets — ins. diameter, averaging — in. from centre to centre of rivet.

„ edges from Garboards to upper part of bilge, worked carvel with a lining piece — in. thick, or clench, double or single riveted ; rivets — in. diameter, averaging — ins. from centre to centre of rivets.

„ butts from keel to turn of bilge, worked carvel with a lining piece — thick double or single riveted ; rivets — in. diameter, averaging — ins. from centre to centre of rivets. Do the lining pieces lap over and rivet through the lands of the strake below ?

„ edges from bilge to planksheer, worked carvel with a lining piece — thick, double or single riveted ; rivets — in. diameter, averaging — ins. from centre to centre of rivets. Do the lining pieces lap over and rivet through the lands of the strake below.

„ butts from bilge to planksheers, worked carvel with a lining piece — thick, or clench, double or single riveted ; rivets — in. diameter, averaging — ins. from centre to centre of rivets. Breadth of laps in double rivetting — Breadth of laps in single rivetting —.

Planksheer, how secured to the plating of the sides { Explain by a sketch, }
Waterway „ „ planksheer and to the beams { if necessary. }

Side trussing —— breadth and thickness of plates —— how secured ——

Deck trussing —— „ „ „ „ „ „

Deck Beams, how secured to the side ——

Hold or Lower Deck „ „

Paddle „ „ „

No. of breasthooks —— crutches —— how are pointers compensated ?

What description of iron is used for the angle iron and plate iron in the vessel ?

————— Builder's Signature.

WORKMANSHIP.—Are the lands or laps of the clench work in all cases in breadth at least five times the diameter of the rivets in double rivetted edges and butts, and at least three times the diameter of the rivets where single rivetting is admitted ?

Do the edges of the carvel work and of the butts fay close together throughout their length without requiring any making good of deficiencies ?

Do the fillings between the ribs and plates fill in solid with single pieces, or are they short lengths of various thicknesses ?

Do the holes for rivetting plates to frames, lining pieces, or plate to plate, &c., conform to each other ? ——— and are the rivet holes well and sufficiently counter sunk in the outer plate ?

Are there any rivets which either break into or have been put through the seams or butts of the plating ?

Her Masts, Yards, &c., are in ——— condition, and sufficient in size and length.

No.	She has SAILS.	CABLES, &c.		ANCHORS, and their weight		No.	Weight
		Fathoms.	Inches.	Bower,	Stream,	Kedge,	
	Fore Sails,	Chain					
	Fore Top Sails,	Hempen Stream Cable					
	Fore Topmast Stay Sails,	Hawser					
	Main Sails,	Towlines.....					
	Main Top Sails and	Warp					
		All of — quality.					

Her Standing and Running Rigging ——— sufficient in size, and ——— in quality

She has ——— Long Boat and ———

The present state of the Windlass is ——— Capstan ——— and Rudder ———
Pumps ———

GENERAL REMARKS.

Statement and date of repairs; extent of corrosion (if any) both internally and externally; condition of rivets.

Dates of Surveys held while building, as per Section 17.	1st. On the several parts of the frame, when in place, and before the plating was wrought ———
	2nd. On the plating during the progress of rivetting ———
	3rd. When the beams were in and fastened, and before the decks were laid ———
	4th. When the ship was complete, and before the plating was finally coated ———
	5th. After the ship was launched ———

In what manner are the surfaces preserved from oxidation ?

I am of opinion this vessel should be classed ———

The amount of the Fee £ : : is received by me,
Special £ : :

Certificate (if required) £ : :

Committee's Minute ——— 18—

Character assigned ———

(Surveyor's Signature.)

FORM OF REPORT OF ANNUAL SURVEY.

No. — Survey held at — Date — 18— on the —
 Master — Tonnage — Built at — When built — By whom
 built — Owners — Port belonging to — Destined
 Voyage — If Surveyed Afloat or in Dry Dock —

Last Survey, No. — Port of — Classed —

The present condition of the

Decks	Plank (Bottom) & Counter.	Caulking of Bottom, Deck, and Waterways
Waterways	Treenails.....	Windlass and Capstan
Comings	Breasthooks and Stemson...	Pumps.....
Upper Deck Beams and Fastenings	Transoms, Pointers, and Crutches.....	Boats
Lower Deck Beams and Fastenings	Timbers of the Frame	Masts, Yards, &c.
Plankshears	Keelsons.....	Sails.....
Sheerstrakes	Clamps and Shelves.....	Anchors, No. of.....
Topsides	Ceiling.....	Cables
Wales	Rudder	Hawsers and Warps
	Copper, when put on	Standing & Running Rigging

General Observations and Opinion,

Committee's Minute — 18—
 Character assigned —

Certificate (if required)

No. 7.

FORM OF CERTIFICATE OF CHARACTER.

Lloyd's Register of British and Foreign Shipping.

ESTABLISHED 1834.

No. —

London,

18

No. 2, White Lion Court, Cornhill.



These are to Certify, That the ————— of —————
 Master, ————— Tons, bound to —————, has been
 Surveyed at ————— by the Surveyors to this Society, and reported to be, on the

and that she has been CLASSED and entered in the REGISTER BOOK of this
 Society with the character .—————

Charge

Witness my hand,

—————, Secretary.

————— Chairman.

FORM OF CERTIFICATE FOR VESSELS NAVIGATED BY STEAM.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

Certificate for Vessels navigated by Steam.

Day of _____, _____ 18

_____ do certify that the whole of the Boilers and machinery of the Steam Vessel _____ belonging to _____, whereof _____ is Master, _____ Tons, have been carefully inspected and examined by _____ at _____, and that _____ find the same to be at this time in good order and safe working condition.

Witness _____

Manufacturing Engineer.

The following is a true Account of the Particulars of the machinery of the Steam Vessel _____ above named:

ENGINES.

Number
Diameter of Cylinder
Length of Stroke
No. per Minute
Estimated Power
Diameter of Paddle-wheels
Length of Paddles
Breadth of Paddles
No. of Paddles
On what motion.....
No. of revolutions per minute
Size of the holding-down bolts
Condition of ditto
Maker of the Engines
Age of the Engines
When they were last taken out
Present condition of the Engines
Can injection water be taken from the Bilge in the event of a serious Leak

FUEL.

Where stowed
If in contact with boiler
If not, what space between Coal Boxes and Boiler
For what quantity room is provided
If liable to get wetted.....

BOILERS.

Whether iron or copper.....
Working pressure
If it can be increased without going into the Boiler.....
What are the means of changing the water while the Boilers are at work
Maker of the Boilers.....
Age of the Boilers.....
When they were last taken out
Present condition
Number of feed pumps
How attached.....
What clear space upon the top side of the boiler from wood-work
Do. at the end from ditto.....
Do. round the chimney from do

PUMPS.

No. of hand pumps
Can they be worked by the Engine
If any attached to engine, their purpose and size.....
No. of force-pumps
No. of branches and hose of sufficient length to reach to every part of the vessel.....

Manufacturing Engineer.

KEY TO THE REGISTER.

The Stores of Vessels are designated by the Figures 1 and 2 :—

1. Signifying that the Vessel is well and sufficiently found,
2. That she is deficient in either quantity or quality.

Vessels RESTORED to, or CONTINUED on the Character A, will have the number of Years for which they are restored or continued inserted separately under the number originally assigned, in the tenth column; where the term in the latter case has expired, the Letter "C" only will be placed before the figure denoting the number of Years for which Continuation had been allowed.

Vessels marked "S.S." with a date, *in red*, denote that they have been surveyed at that time in accordance with the Rules, Sec. 60.

British North-American built vessels, opened as required by the Rules, Sec. 63, will be marked in the Register "S.S" with the number of years that may elapse before they are again opened, and the year of survey; thus—"S.S.54—3Yrs—"

When the Rules, Sec. 63, have not been complied with, they will be marked in the Register; thus—"Not Op." and the Character omitted.

When the term "almost Rebuilt" is used, it implies large repairs, but that the Rules for Restoration have not been fully complied with.

The figures in the Tenth Column, to vessels in the *Æ* Class, imply that they were originally classed A, for that number of Years. The cipher 0 in this Column indicates that (from inferior construction) there were no "number of Years first assigned."

Sailing Vessels thus distinguished, "A P. 30 H." denote that they are Fitted with Auxiliary Steam Power, equal to 30 Horses.

Ships built under Special Survey will be shown by a Cross, thus ✕.

In the Second Column.

Bk.....	Barque	H	Hoy	Sp	Sloop
Bg.....	Brig	K	Ketch	Sr	Schooner
Bn.....	Brigantine	Lr	Lugger	St	Schoot
Cr.....	Cutter	Pol	Polacre	Stm.....	Steamer
Dr.....	Dogger	S.....	Ship	Sw	Snow
G	Galliott	Sk	Smack	Yt	Yacht.
pt.—part—	s.—sheathed—	d.—doubled—	C.—coppered—	I. B.—	
Iron Bolts—	c.f.—copper fastened—	M.—sheathed with Marine Metal			
YM.—	sheathed with Yellow Metal—	G. Iron—	sheathed with		
Galvanized Iron—	Z.—sheathed with Zinc—	Felt.			
C.lm.—	Coppered to light water or ballast mark.				
C.T.—	Copper Bolts substituted for Treenails.				

In the Third Column.

"(1 Cls. Ex.)," "(1 Cls.)," or "(2 Cls.)," under the master's name, denote that the said master has received a certificate of qualification for the class indicated.

In the Fourth Column.

M.C.—Machinery certified. H.P.—Horse Power. Where two Tonnages are given, the upper one is the Measurement by the old Act, the under one is that by the new Act, which commenced the 1st January, 1836.

KEY TO THE REGISTER.

In the Fifth Column.

The Timber of which vessels are built is marked by the following Italic Letters:

<i>A</i>	Ash	<i>Hn.</i>	Hemlock	<i>RP</i>	Red Pine
<i>BB</i>	Black Birch	<i>J.</i>	Juniper	<i>YP</i>	Yellow Pine
<i>Bh</i>	Beech	<i>L.</i>	Locust	<i>S.</i>	Spruce
<i>C</i>	Cedar	<i>Lh.</i>	Larch	<i>Sb.</i>	Sabiceu
<i>Chs.</i>	Chesnut	<i>LO</i>	Live Oak	<i>Sl.</i>	Saul
<i>E</i>	Elm	<i>M</i>	Mahogany	<i>T.</i>	Teak
<i>F</i>	Fir	<i>O</i>	Oak	<i>Tam.</i>	Tamarac
<i>G</i>	Gum	<i>P</i>	Pine	<i>WH.</i>	Witch Hazel
<i>Ght.</i>	Greenheart	<i>PP</i>	Pitch Pine	<i>WO</i>	White Oak
<i>Hh.</i>	Hackmatack				

Cl.—Clincher — len.—lengthened — lrp.—large repairs — trp.—thorough repairs — Srprs—Some repairs — Drp.—Damage Repaired — xi.—New Deck — n TSds—New Top-Sides — w.s.—Walessheathed — nw—New Wales — nb.—New Bottom — n Kl.—New Keel — plk.—l'lank — n Klsn—New Kelson — alm. rb.—almost rebuilt — pt O.M.—part old Timbers or Plank — Rest.—Restored — Cont.—Continued.

Blk Hds.—Bulk Heads.

In the Eighth Column:—U.S. for American Property.

In the Ninth Column (Surveying Ports):

Abn.. Aberdeen	Drt .. Dartmouth	Lon. . London	St. I.. St. Ives
Abs.. Aberystwith	Dub.. Dublin	Ldy.. Londonderry	St. J... St. John
Arb.. Arbroath	Dum.. Dumfries	Lyn.. Lynn	Ser.. Scarborough
Bng.. Bangor	Dun.. Dundee	Mar.. Margate	Sil.. Scilly
Bnf.. Banff	Dgr.. Dungarvon	Mpt.. Maryport	Shl.. { Shields, N.
Bar.. Barmouth	Exr.. Exeter	Mil.. Milford	Shl.. { Shields, S.
Bpl.. Barnstaple	Fal.. Falmouth	Meh.. Miramichi	Shm.. Shoreham
Bms.. Beaumaris	Foy.. Fowey	Mth.. Monmouth	Sli.. Sligo
Bel.. Belfast	Gal.. Galway	Mtr.. Montrose	Sou.. Southampton
Bwk.. Berwick	Glr.. Gloucester	N Sc.. Nova Scotia	Stk.. Stockton
Bid.. Bideford	Goo.. Goole	Nwc.. Newcastle	Str.. Stranraer
Blg.. Belgium	Gns.. Guernsey	Nhv.. Newhaven	Sld.. Sunderland
Bly.. Blyth	Hgt.. Harrington	Npt.. Newport	Sws.. Swansea
Bos.. Boston	Hpl.. Hartlepool	Nry.. Newry	Tgn.. Teignmouth
Bdg.. Bridgewater	Har.. Harwich	Ork.. Orkneys	Tps.. Topsam
Bpt.. Bridport	Hol.. Holland	P. E. I. { Prince Ed- Brs.. Bristol	Tqy.. Torquay
Car.. Cardigan	Hul.. Hull	ward Island	Wtf.. Waterford
Cff.. Cardiff	Inv .. Inverness	Pad.. Padstow	Wls.. Wells
Chp.. Chepstow	Ips.. Ipswich	Pnz.. Penzance	Wex.. Wexford
Chs.. Chester	J. M. . Isle of Man	Pet.. Peterhead	Wey.. Weymouth
Cly. { Clyde	Jer .. Jersey	Ply.. Plymouth	Wtb.. Whitby
Crk.. Cork	Lan.. Lancaster	Poo.. Poole	Whn.. Whitehaven
Cws.. Cowes	Lth.. Leith	Pts.. Portsmouth	Wrk.. Workington
Dov.. Dover	Lim.. Limerick	Pmd.. Portmadoc	Yar.. Yarmouth
	Liv.. Liverpool	Ram.. Ramsgate	Ygh.. Youghal
	Lly.. Llaneily	Qbc... Quebec	

In the Eleventh Column.

The Figures under the Character denote either the Year, or the Month of the current Year, in which the Vessel was last surveyed.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

SHIPS CLASSED AE.

THE General Committee of this Society having determined, by Resolutions passed from year to year, that the Characters of all Ships of the *AE* Class (*including those with the Asterisk*) which had not been surveyed between the years 1834 and 1854 inclusive, should in conformity with the Rules, sections 60 and 61, be expunged, and that such Ships should not have their Characters re-entered in the Society's REGISTER BOOK, until upon further Survey they were found to be entitled thereto;—And it having been also this day decided to extend the Resolution above mentioned to the Ships of this Class which have not been surveyed since the year 1855:—NOTICE is hereby given, that in pursuance of this decision, the Characters of such Ships of the Class in question as shall not be re-surveyed prior to the 30th of June next (not having been surveyed since 1855) will be omitted in reprinting the Register Book for the Year 1857-58.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

6th November, 1856.

N.B.—In the case of Ships which, it shall be made appear by the owners, have not been in any Port in the United Kingdom since 1855, the above Resolution will not be applied.

KEY TO THE REGISTER.

In the Fifth Column.

The Timber of which vessels are built is marked by the following Italic Letters:

<i>A</i>	Ash	<i>Hm.</i>	Hemlock	<i>RP</i>	Red Pine
<i>BB</i>	Black Birch	<i>J.</i>	Juniper	<i>YP</i>	Yellow Pine
<i>Bh.</i>	Beech	<i>L.</i>	Locust	<i>S.</i>	Spruce
<i>C.</i>	Cedar	<i>Lh.</i>	Larch	<i>Sb.</i>	Sabieu
<i>Chs.</i>	Chesnut	<i>LO.</i>	Live Oak	<i>Sl.</i>	Saul
<i>E.</i>	Elm	<i>M.</i>	Mahogany	<i>T.</i>	Teak
<i>F.</i>	Fir	<i>O.</i>	Oak	<i>Tam.</i>	Tamarac
<i>G.</i>	Gum	<i>P.</i>	Pine	<i>WH.</i>	Witch Hazel
<i>Ght.</i>	Greenheart	<i>PP.</i>	Pitch Pine	<i>WO.</i>	White Oak
<i>Hh.</i>	Hackmatack				

Cl.—Clincher —len.—lengthened —lrp.—large repairs —trp.—thorough
 repairs —Srprs.—Some repairs —Drp.—Damage Repaired —ND.—New
 Deck —NTSds.—New Top-Sides —w.s.—Walesheathed —nw.—New
 Wales —NB.—New Bottom —n Kl.—New Keel —plk.—Flank —
 n Klsn —New Kelson —alm. rb.—almost rebuilt —pt O.M.—part old
 Timbers or Plank —Rest.—Restored —Cont.—Continued.
Blk Hds.—Bulk Heads.

In the Eighth Column:—U.S. for American Property.

In the Ninth Column (Surveying Ports):

<i>Abn.</i> .. Aberdeen	<i>Drt.</i> .. Dartmouth	<i>Lon.</i> .. London	<i>St. I.</i> .. St. Ives
<i>Abs.</i> .. Aberystwith	<i>Dub.</i> .. Dublin	<i>Ldy.</i> .. Londonderry	<i>St. J.</i> .. St. John
<i>Arb.</i> .. Arbroath	<i>Dum.</i> .. Dumfries	<i>Lyn.</i> .. Lynn	<i>Ser.</i> .. Scarborough
<i>Bng.</i> .. Bangor	<i>Dun.</i> .. Dundee	<i>Mar.</i> .. Margate	<i>Sil.</i> .. Scilly
<i>Bnf.</i> .. Banff	<i>Dgr.</i> .. Dungarvon	<i>Mpt.</i> .. Maryport	<i>Shl.</i> .. { Shields, N.
<i>Bar.</i> .. Barmouth	<i>Exr.</i> .. Exeter	<i>Mil.</i> .. Milford	<i>Shl.</i> .. { Shields, S.
<i>Bpl.</i> .. Barnstaple	<i>Fal.</i> .. Falmouth	<i>Mch.</i> .. Miramichi	<i>Shm.</i> .. Shoreham
<i>Bms.</i> .. Beaumaris	<i>Foy.</i> .. Fowey	<i>Mth.</i> .. Monmouth	<i>Sli.</i> .. Sligo
<i>Bel.</i> .. Belfast	<i>Gal.</i> .. Galway	<i>Mtr.</i> .. Montrose	<i>Sou.</i> .. Southampton
<i>Bwk.</i> .. Berwick	<i>Glr.</i> .. Gloucester	<i>N Sc.</i> .. Nova Scotia	<i>Stk.</i> .. Stockton
<i>Bid.</i> .. Bideford	<i>Goo.</i> .. Goole	<i>Nwc.</i> .. Newcastle	<i>Str.</i> .. Stranraer
<i>Blg.</i> .. Belgium	<i>Gns.</i> .. Guernsey	<i>Nhv.</i> .. Newhaven	<i>Sld.</i> .. Sunderland
<i>Bly.</i> .. Blyth	<i>Hgt.</i> .. Harrington	<i>Npt.</i> .. Newport	<i>Sws.</i> .. Swansea
<i>Bos.</i> .. Boston	<i>Hpl.</i> .. Hartlepool	<i>Nry.</i> .. Newry	<i>Tgn.</i> .. Teignmouth
<i>Bdg.</i> .. Bridgewater	<i>Har.</i> .. Harwich	<i>Ork.</i> .. Orkneys	<i>Tps.</i> .. Topsham
<i>Bpt.</i> .. Bridport	<i>Hol.</i> .. Holland	<i>P. E. I.</i> .. { Prince Ed- ward Island	<i>Tqy.</i> .. Torquay
<i>Brs.</i> .. Bristol	<i>Hul.</i> .. Hull	<i>Pad.</i> .. Padstow	<i>Wtf.</i> .. Waterford
<i>Car.</i> .. Cardigan	<i>Inv.</i> .. Inverness	<i>Pnz.</i> .. Penzance	<i>Wls.</i> .. Wells
<i>Cff.</i> .. Cardiff	<i>Ips.</i> .. Ipswich	<i>Pet.</i> .. Peterhead	<i>Wex.</i> .. Wexford
<i>Chp.</i> .. Chepstow	<i>J. M.</i> .. Isle of Man	<i>Ply.</i> .. Plymouth	<i>Wey.</i> .. Weymouth
<i>Chs.</i> .. Chester	<i>Jer.</i> .. Jersey	<i>Poo.</i> .. Poole	<i>Wtb.</i> .. Whitby
<i>Cly.</i> .. { Clyde	<i>Lan.</i> .. Lancaster	<i>Pts.</i> .. Portsmouth	<i>Whn.</i> .. Whitehaven
<i>Glasgow, &c.</i>	<i>Lth.</i> .. Leith	<i>Pmd.</i> .. Portmadoc	<i>Wrk.</i> .. Workington
<i>Crk.</i> .. Cork	<i>Lim.</i> .. Limerick	<i>Ram.</i> .. Ramsgate	<i>Yar.</i> .. Yarmouth
<i>Cws.</i> .. Cowes	<i>Liv.</i> .. Liverpool	<i>Qbc.</i> .. Quebec	<i>Ygh.</i> .. Youghal
<i>Dov.</i> .. Dover	<i>Lly.</i> .. Llanelly		

In the Eleventh Column.

The Figures under the Character denote either the Year, or the Month of the current
Year, in which the Vessel was last surveyed.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

SHIPS CLASSED \ae .

THE General Committee of this Society having determined, by Resolutions passed from year to year, that the Characters of all Ships of the \ae Class (*including those with the Asterisk*) which had not been surveyed between the years 1834 and 1854 inclusive, should in conformity with the Rules, sections 60 and 61, be expunged, and that such Ships should not have their Characters re-entered in the Society's REGISTER BOOK, until upon further Survey they were found to be entitled thereto;—And it having been also this day decided to extend the Resolution above mentioned to the Ships of this Class which have not been surveyed since the year 1855:—NOTICE is hereby given, that in pursuance of this decision, the Characters of such Ships of the Class in question as shall not be re-surveyed prior to the 30th of June next (not having been surveyed since 1855) will be omitted in reprinting the Register Book for the Year 1857-58.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

6th November, 1856.

N.B.—In the case of Ships which, it shall be made appear by the owners, have not been in any Port in the United Kingdom since 1855, the above Resolution will not be applied.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

SHIPS CLASSED A, WHOSE CHARACTERS EXPIRE ON THE 31st DECEMBER, 1856.

With reference to the Resolution passed by the Committee on the 6th instant, relating to SHIPS CLASSED A,—NOTICE is hereby given, that in pursuance of a further Resolution passed this day :—

“ All Ships Classed A for a term of years, and which term will expire at the end of the year 1856, will have the character A struck out of the Register Book on the 31st December next, and the word ‘lapsed’ inserted in lieu thereof, except in the case of such Vessels as the Owners shall make it appear have not been in any Port of the United Kingdom during the year 1856; such ships will have the Character A 1 retained until the re-printing of the Register-Book in June next.

By order of the Committee,

GEORGE B. SEYFANG.

Secretary.

2, White Lion Court, Cornhill, London,
27th November, 1856.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

NOTICE is hereby given that, in pursuance of a Resolution passed by the Committee this day, the Rule, section 37, has been amended, and will stand as follows:—viz.

SECTION 37.—The whole of the Timber to be of good quality, of the descriptions shown in Table A, as applicable to the several terms of years for which ships so constructed may respectively be appointed to remain on the character A. The stem, stern-posts, beams, transoms, apron, knight-heads, hawse-timbers, and keelson of ships claiming to stand *twelve years*, to be entirely free from all defects: the frame to be well squared and free from sap; every alternate set of timbers to be framed and bolted together to the gunwale. The butts of the timbers to be close, and not to be less in thickness than one-third of the entire moulding at that place, and to be well chocked with a butt at each end of the chock. In all cases in which the heads and heels of the timbers shall be *square*, in vessels intended for the twelve years' grade, a dowel (to be in diameter from one-fourth to one-third of the moulding of the timber) must be introduced into the ends of such timbers in order to connect them together. In the construction of top-gallant forecastles and poops, the timbers must be of the same materials as are required by the Rules (Table A), for the top timbers of the frames of ships according to the several terms of years appointed for such ships to remain on the character A, all the said timbers to extend to the planksheer. All the outside planking of top-gallant forecastle, and the sheerstrakes, plank-sheers, and spirketting of top-gallant forecastle and poops must be of the materials required by the Rules (Table A), for the topsides of the said ship; and the shelf and clamps of poops and top-gallant forecastle may be of the same quality as those allowed in Table A, for the shelf and clamp of the upper deck. All the beams of top-gallant forecastle, and the mast-beams, breast-beams, and transom-beams of poop, to be of the materials required by the Rules (Table A) for the beams of the said ships; the remainder of the beams and the waterway of the poop, and the remainder of the planking of poop and top-gallant forecastle may be of cedar, mahogany, Baltic, or American red pine, pitch pine, larch, hackmatack, tamarac, or cowdie, and rock elm for such remainder of beams only, and yellow pine or American white spruce in ships below the 7 years' grade.

This Rule does not apply to raised quarter decks, the materials of which are required to be of the same quality as those named in the Table for the main body of the ship.*

* Whenever materials or fastenings beyond those required by the Rules are introduced into a Ship building for Classification, they must be in conformity with the Rules for the grade which may be contemplated, as regards size, material, and method of securing.

By order of the Committee,

GEORGE B. SEYFANG,
Secretary.

2, White Lion Court, Cornhill, London, (E. C.)
18th December, 1856.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

NOTICE is hereby given, that in pursuance of Resolutions passed this day by the Committee, the Rules have been amended as follows:—viz.,

SECTION 46.—Every butt in each outside plank to be fastened with *two* bolts, one of which may be in the adjoining timber, and one to be through and clenched.

SECTION 38.—In the inside and outside planking, waterways, plankshears, and flat of deck of full poops and top-gallant forecastles, a reduction of *one-fourth* from the thickness required by the Table B for such planks in the range of the upper deck in ships with two decks, will be allowed; and in the siding and moulding of the top timbers and beams of full poops and top-gallant forecastles, a reduction of *one-fifth* will be allowed.

In the inside and outside planking, waterways, plankshears, and flat of deck of raised quarter decks, a reduction of *one-fifth* from the thickness required by the Table B for such parts in the range of the upper deck in ships with two decks will be allowed.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

18th December, 1856.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

TABLE A.

With reference to the Resolution passed by the Committee on the 1st of May last, prescribing "That whenever materials or fastenings beyond those required by the Rules are introduced into a Ship building for Classification, they must be in conformity with the Rules for the grade which may be contemplated, as regards size, material, and method of securing;"—NOTICE is hereby given, that the head line "Keelson" in Table A has been altered, and stands as follows, "Main and Rider Keelsons"; thus requiring *Hog or Rider Keelsons* to be of materials of equal quality to that prescribed by the Rules for the Main Keelson in Ships of the grade which may be contemplated.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

18th December, 1856.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

IRON SHIPS.

NOTICE is hereby given, that in accordance with a Resolution passed on the 12th instant, by the Committee of Lloyd's Register of British and Foreign Shipping :—

Iron Ships built prior to the promulgation of the Rules will be allowed to remain in the Register Book classed A 1 from Year to Year, *subject to annual survey*, until the expiration of *Six Years* from their date of build; they will then be examined to determine the period to which they may be entitled under the Rules; and if, on such examination, it shall be found the Ships are entitled to the 9 or 12 years' grade, it shall be in the option of the Owners either to adopt such period respectively, or continue the Vessel A 1 from Year to Year, as above, until the expiration of the extended period.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

14th February, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

IT having been represented to the Committee that much inconvenience and loss will be incurred by the Ship-builders in the British North American Colonies if the Regulation passed on the 15th May last, "That on and after the 1st July, 1857, Ships which proceed to sea without being fastened with the Iron Knees and Riders prescribed by the Rules, will have one year deducted from the period to which they would otherwise be entitled to be classed in the Register Book," be carried rigidly into effect:—NOTICE is hereby given, that with a view to obviate, as far as practicable, the inconvenience complained of, arising from the difficulty at present experienced in obtaining the Iron Knees and Riders required, it has been this day resolved to postpone the application of the Regulation above quoted until the 1st January, 1858, after which time its provisions will be strictly enforced.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

19th February, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

NOTICE is hereby given, that in pursuance of a Resolution passed this day by the Committee for Lloyd's Register of British and Foreign Shipping, the following important alterations have been made in the Rule, Section 60; instituting the character A *in red*, as the second description of the First Class, in place of the Æ asterisk in red, which character will lapse and become extinct from the effluxion of time.

SHIPS A, IN RED.

SECTION 60.—Ships that have passed the periods which have or might have been assigned to them for the character A originally, or on Continuation, or for Restoration, and shall be found on survey to be of a superior description, being fit for the safe conveyance of dry and perishable goods to and from all parts of the world, shall be classed A in Red, as the Second description of the First class. Those ships, however, the original construction of which, by their timber materials, may not have entitled them to the A character for a longer period than Five Years, will not be eligible for this character.

In all cases in which the owner may claim this character, the ship must undergo a special survey by two surveyors (to be appointed in every instance by the Committee), one of whom shall be an exclusive officer of the Society, and be subject in other respects to a compliance with the undermentioned requisitions of Survey, viz.:—The ship to be either placed in dry dock or laid on blocks, so that the keel may be examined, and be scraped or dubbed bright from the light water-mark upwards, including the planksheers and waterways, so as to expose the surface of the plank to view.* Iron bolts, in number not less in any case than six on each side in each range of the deck-fastenings, to be driven out in ships of 500 tons and under, and increased in number in proportion to the size

* If the ship has been sheathed with wood over felt, fastened with copper or mixed metal nails, within a period of five years, or with only metal sheathing within a period of two years, and the plank from the light water-mark upwards shall, when so sheathed, have been brightened, and the condition of the bolts, planking, treenails, and caulking ascertained, and favourably reported upon by the surveyors; and provided that the sheathing which covers the binding bolts and raft ports, and a stave of sheathing all fore and aft on each side under the wales be removed, and listings of sheathing cut out at hood ends; and the planking, fastenings, and caulking so exposed, shall prove to be in good condition; then, on application to the Committee, the stripping from the light water-mark upwards may be dispensed with; but whenever the sheathing is removed, the outside planking is to be scraped or dubbed bright and examined as prescribed by the above rule.

of the ship, and one treenail to be driven out in every alternate frame or fourth timber between the upper edge of the wales and planksheers, and one in every alternate frame or fourth timber between the upper edge of the wales and the light water-mark, and such other parts of the bottom as the surveyors may direct, so as to enable a judgment to be formed as to the general state of the frame, treenails, and inside of the planking. The hold to be cleared, and proper stages made both inside and outside. The attention of the surveyors shall then be particularly directed to the state of the upper or main deck and coming, the upper and lower deck bolts, and the outside planks through which they pass; the planksheers, waterways, and beams, so far as they can be examined; the hawse-timbers, knightheads, breasthooks, and transoms; the floors and keelsons; the keel, rudder, and windlass; the planking outside and inside, and the treenails; and the frame and inner surface of the outside planking, where they can be seen; and the sheer and general form of the ship; the condition of the oakum and caulking also to be ascertained, and the ship to be efficiently repaired with suitable materials as hereinafter stated.

But when a period of two-thirds of the number of years beyond that originally assigned for a Vessel's retaining the A character, or if a period of two-thirds the number of years beyond that assigned on Restoration has elapsed, an owner be desirous to have his ship retain, or be placed upon, this character, application must be made to the Committee in writing, who will direct the survey to be made by two surveyors, one of whom shall be an exclusive officer of the Society; and for the purpose of holding such survey, the ship must be placed in dry dock, or laid on blocks upon ways, so that the keel may be examined; all sheathing to be entirely stripped off the bottom and elsewhere; all the outside planking from light water-mark upwards, including the planksheers and waterways, to be scraped or dubbed bright;* the timbers of the frame to be exposed to view by the removal of planking equal to one strake fore and aft, on each side, above the wales, either inside or outside, at the discretion of the surveyor; a short plank in each buttock; a plank or listing of sufficient breadth, on each side, at the discretion of the surveyor, in the ceiling above the floor-heads in midships (or, if the ship-owner should prefer it, plank outside at the same height), and a reasonable number of treenails before and abaft the same, so as to ascertain the state of the lower timbers of the frame; and in order to ascertain the condition of the beam ends, either a strake of deck next the waterways on each side to be taken out, or an examination be made by boring, at the option of the ship-owner; iron bolts and treenails to be driven out at the various parts as prescribed above;† proper stages to be made both inside and outside; and when in the state above described, the special survey to be held as above directed upon all the parts exposed to view; the condition of the oakum and caulking to be ascertained; the ship to be efficiently repaired with suitable materials, as hereinafter stated. And to entitle them to continue this character, such vessels will be required, in addition to the usual annual survey, to undergo a special re-survey, as prescribed above, within a period (from the date of the last special re-survey) not exceeding *two-thirds* of the several terms of years originally assigned to them, or earlier, if, in the judgment of the Surveyors, upon a careful examination of the ship, the same shall appear to them to be necessary.

In the repair of vessels for the above character, no materials may be used of a description inferior to those allowed in new Ships for the Six Years' grade.

* See note on preceding page.

† In the case of doubled ships, or ships of peculiar construction, special application may be made to the Committee.

Whenever it shall appear to the Surveyors that a vessel classed A in Red shall no longer be in a condition to deserve that character, notice of the proposal to reduce her shall be given in writing to the Owner, Master, or Agent, in the same manner as is prescribed by the Rules, section 21.

N.B.—Ships at present classed with the AE asterisk character will be allowed to retain the same, subject to annual Survey, until the expiration of the period for which they have already been specially Surveyed.

The foregoing Rule will come into force on the 1st of October next (after which date no Ship will be surveyed for the red AE asterisk character); but owners desirous of availing themselves of its provisions in the meantime, may have their Ships immediately surveyed in accordance therewith, for the character A in red.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill, London, (E.C.)*
5th March, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

RULES AND REGULATIONS.

NOTICE is hereby given, that in pursuance of Resolutions passed by the Committee on the 14th and 21st instant, the Rules and Regulations of Lloyd's Register of British and Foreign Shipping have been amended as follows :—

SECTION 35.—Ships intended to be built under *special survey*, must be placed under the surveyor's inspection from their commencement, so that all parts of the timbers, deadwood, keel, stem, &c., may be examined.

The "first survey" prescribed by this Rule is to be held "when the frame is completed, *timbers dubbed fair inside and outside ready to receive planking, and before any planking is wrought.*"

SECTION 39.—The thickness of the "thick strakes," required when ships are built with double floors, is defined in Table B.

SECTION 41.—The following words in the seventh line of this Rule have been omitted, viz. :—"fitted as standards or hanging knees (the latter being preferred)," thus requiring all the knees to hold beams to be fitted as hanging knees.

SECTION 46, allowing additional periods to ships fastened with copper or yellow metal, to the entire exclusion of iron, which has hitherto been confined to ships of the six years' grade and upwards, will in future be extended to ships of all grades.

The following have been added to the exceptions in this Rule as fastenings which may be of iron, viz., the upper bolt in knee of head, and bolts in arch-plates, provided they do not go through the outside plank.

The foot-note to this Rule has been omitted, thus rendering it imperative that the lower edge of the garboard strakes be properly bolted.

SECTION 53 will stand as follows:—Ships built in the United Kingdom, or in Quebec after 1851, or St. John, New Brunswick, after 1853, or Miramichi, and Northern Ports of New Brunswick, or in Prince Edward Island after 1855, and *not surveyed while building* by the surveyors to this society, and *all* ships, the owners or builders of which may have refused or declined to permit them to be surveyed at the several periods prescribed by the Rules, will have One Year deducted from the period which would otherwise have been assigned, in consequence of their not having been submitted to survey during their construction. In no case, however, will a higher grade than 10 A be assigned to ships built in the United Kingdom, which shall not have been surveyed while building.

SECTION 59 has been amended as follows, commencing at the eighth line:—"At the termination of the several periods assigned to ships for remaining on the

character A, they will have the character A struck through, and the word "lapsed" inserted against them; and if not re-surveyed prior to the reprinting of the Register Book, they will appear without any character."

SECTION 67.—The following has been added as a foot-note, viz.,—In cases where ships have been doubled with doubling of less thickness than is prescribed by, or not fastened in accordance with, the Rules, it will not be imperative that such doubling be stripped at the expiration of seven years; but if, upon survey, the doubling be found in good condition, the period for its remaining on may be extended, with the sanction of the Committee, to a term not exceeding ten years, provided the doubling below the wales be copper or yellow metal fastened or treenailed.

SECTION 68 has had the following addition made to it, viz.,—"Where ships (*not under 400 tons*) are *diagonally* doubled, the thickness of the materials for *wales and bottom* may be half an inch less than now prescribed."

TABLE A.—"Exhibiting the number of years assigned to the different descriptions of timber of good quality," has likewise been amended, and the following alterations made therein, viz.:—

Pitch Pine will be allowed for "stem and sternpost," and "transoms, knighthheads, hawse-timbers, apron, and deadwood," in ships of the seven years' grade and under; and for "wales and blackstrakes" in ships of the nine years' grade.

Yellow Pine will be allowed for "topsides and sheerstrakes" in ships of the five years' grade.

"Planksheers" and "Spirketting" have been placed in the same column with "upper deck waterways;" and Mahogany, Cuba Sobicu, Pencil Cedar, and Red Cedar, heretofore allowed for "waterways" in ships of the twelve years' grade, will be confined to ships of the ten years' grade and under. "Continental White Oak and Spanish Chesnut" hitherto limited for "waterways" in ships of the eight years' grade, will be allowed in ships of the nine years' grade.

Second-hand English Oak, African Oak, and East India Teak, will be allowed for "shelf-pieces, clamps, and lower deck waterways" in ships of the five years' grade; and Baltic and American Red Pine for the same parts in ships of the eight years' grade.

The general terms "South American and Australasian Hardwoods" have been discontinued; and "Angelly" and "Venatica" timber have been placed in the same column with "Red Cedar;" and "Stringy Bark" and "Blue Gum" wood have been placed in the same column with "other Continental White Oak and Spanish Chesnut."

Copies of the Table A, amended as above, and in which some additions have been made in respect to timbers which may be used for "main pieces of rudders and windlasses," can be obtained on application at this office, or of the surveyors at the outports.

By Order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, *White Lion Court, Cornhill, London, (E.C.)*

21st May, 1857.

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

[Established 1834.]

IRON SHIPS.

The Committee of Lloyd's Register of British and Foreign Shipping having very carefully reconsidered and revised the Rules for the Building and Classification of Iron Ships:—NOTICE is hereby given, that in pursuance of Resolutions passed this day, the following important alterations and amendments have been made therein, to which the attention of Ship-builders and others interested in Iron Ships is particularly directed, viz.—

SEC. 1.—Will in future require the names of the manufacturers of the iron of which ships are constructed to be inserted in the Surveyors' Reports of Survey.

SEC. 2.—So far as it relates to stern and propeller posts, in the fourth line, will stand as follows:—"and the sternposts, and after end of keel, for screw-propelled vessels, to be double the thickness of, or twice the sectional area of, the adjoining length of keel (*but the siding in no case to be less than the thickness of the keel*), and to be tapered fair into the adjoining length of keel," &c. It is also required that the butts of the garboard strakes must be shifted so as not to be opposite each other.

SECS. 4 & 5 have been transposed, and, with the succeeding sections, will stand as under:—viz.

SEC. 4.—The floor-plates to be in thickness as per Table G, and to extend beyond the bilge keelsons, and to be in depth at middle line not less than one inch for every foot of the vessel's depth, measured from the top of upper or spar-deck beams to top of floor-plate, and not to be less in depth at the bilge keelsons than the moulding of the frame. A floor-plate to be fitted and riveted to every frame, and at the ends of the vessel; the floor-plates to be worked across the middle line, so as to support and unite the sides of the vessel efficiently to each other.

SEC. 5.—Reversed angle iron on frames to be in size as per Table G. All vessels of whatever size, to have reversed angle iron rivetted to every frame and floor-plate across the middle line to the height of upper part of bilges, and to have double reversed angle iron in way of all keelsons; and, in addition, all vessels of 300 tons and upwards to have reversed angle iron extended from bilges to the upper deck beam stringer on alternate frames; and vessels of 800 tons and upwards to have reversed angle iron extended on every frame from bilges to

lower deck or hold beam stringer, if the vessel has two decks or tiers of beams, and to the height of middle deck beam stringer if the vessel has three decks or tiers of beams; the rivets for securing the reversed angle iron to the frames and floor-plates to be in diameter equal to those specified in the Table for the outside plating, and not to exceed six times their own diameter apart.

SEC. 6.—The middle line keelsons,* if of single plate, to be of the same thickness as the floor-plates; and if standing above the floor-plates, to be well fitted and riveted to the same, and a reversed angle iron to be fitted on each side, both on the top and the bottom, extending all fore and aft, the lower angle irons to be secured to the double reversed angle irons on the top of floors; if box keelsons be adopted, the plating to be of the thickness as per Table G, and in either case to be two-thirds of the depth of floor-plates.

If intercostal middle-line keelsons be adopted, they are to be of the same thickness as the floor-plates, and riveted to vertical angle irons on all floor-plates at each end, the plates to extend from upper edge of keel to above the upper edge of floor-plates, sufficiently high to be riveted between the double angle irons extending all fore and aft, of the dimensions given in Table G; and the said double angle irons of keelsons are to be riveted to double angle irons on top of all floor plates.

SEC. 7.—The bilge keelsons to be fitted and secured in an efficient manner, extending all fore and aft, and placed at lower turn of bilges, according to the form of the bottom. In ships of 1,000 tons and upwards, an intercostal keelson to be fitted on each side, all fore and aft, about midway between the middle line keelson and the bilge keelson, with double angle iron riveted on the top of floor-plates.

All vessels of 500 tons and upwards, to have fitted between the bilge keelsons and the hold beams, at the upper part of the turn of bilge, strong angle irons, as stringers, extending all fore and aft, riveted back to back to the reversed irons on the frames, the size of them not to be less than those used for the middle line keelson.

SEC. 9.—In the outside plating, stringer-plates upon beams, angle iron on stringer-plates, and flat of deck of raised quarter-decks, a reduction of one-fifth from the thickness required by the Table G for such parts in the range of the upper deck in ships with two decks will be allowed.

In the outside plating, stringer-plates upon beams, angle iron on stringer-plates, and flat of deck of full poops and top-gallant forecastles, a reduction of one-fourth from the thickness required by the Table G for such parts in the range of the upper deck in ships with two decks will be allowed, and for the beams of full poops and top-gallant forecastles a reduction of one-fifth will be allowed. The united lengths of poop and forecastle not to exceed three-fifths of the entire length of the upper deck.

In the scantlings of beams, plating, flat of deck stringer-plates, and angle iron on stringers to upper (or spar deck) in vessels with three decks, viz., upper, middle, and lower deck, a reduction of one-sixth from the dimensions given for such parts in the range of upper deck in ships with two decks will be allowed.

SEC. 10.—The latter part of this Rule has been altered, and will stand as follows, viz.:—Where a deviation from the foregoing Rules, as applying to beams, takes place in way of engine-room or hatchways, or where no deck is intended to be laid, and the above-named spaces would materially interfere with the stowage of cargo, and where partial or entire bulkheads with horizontal

* In all cases the Keelsons, and, where practicable, the Shelfpieces and Stringers are to be carried fore and aft, without being cut off at the Bulkheads, the latter being made watertight around them; and where such parts of the ship are necessarily separated, they are to be effectually connected, to the satisfaction of the Surveyor.

shelves and stringers between them, or larger beams are substituted for ordinary beams in wider spaces, a sketch, with all particulars, must be submitted through the resident Surveyor, for the Committee's consideration. The middle deck to be a perfect deck, laid and caulked.

SEC. 11 will stand as follows :—

"The rivets to be of the best quality, and to be in diameter as per Table G, the rivet-holes to be regularly and equally spaced and carefully punched opposite each other in the laps and lining-pieces or strips, to be countersunk all through the outer plating; the rivets not to be nearer to the butts or edges of the plating, lining-pieces to butts, or any angle iron, than a space not less than their own diameter, and not to be further apart from centre to centre than four times their diameter, or nearer than three times their diameter, and to be spaced through the frames and outside plating a distance equal to eight times their diameter apart. When rivetted up they are completely to fill the holes, and their points or outer ends are to be round or convex, and not to be below the surface of the plating through which they are riveted. *All edges or horizontal joints of outside plating to be double rivetted in vessels intended for the 12 years' grade of 700 tons and upwards; and from keel to the height of upper part of bilges all fore and aft in vessels intended for the 9 years' grade, and for 12 years' grade under 700 tons.* The stem, stern-post, keel, edges of garboard strakes and sheerstrakes, and butts of outside plating, and butts of floor-plates, breasthooks, transoms, and plates of beams; also butts of keelsons, stringers, shelf-plates, and all other longitudinal ties to be double rivetted in all vessels. The overlaps of plating, where double riveting is required, to be not less in breadth than five times the diameter of the rivets; and where single rivetting is admitted, the overlaps to be not less in breadth than three times the diameter of the rivets. If double rivetting be adopted where single rivetting is allowed by the Rules, the diameter of the rivets may be reduced 1-16th of an inch below that prescribed by the Rules, provided that in no case the diameter be reduced below 5-8ths of an inch. The butts and edges of outside plating to be truly fitted, carefully caulked, and made water-tight.

SEC. 12.—Bulkheads. In addition to the engine-room bulkheads of steamers, all vessels to have two water-tight bulkheads, built at a reasonable distance from the ends, to extend from the keel *and outside plating* to the upper deck in vessels with two decks, and to the middle deck in vessels with three decks (otherwise called "tonnage deck"); but it shall not be required to extend the aftermost bulkhead to this height if it be continued above the load water-line, and be connected to a water-tight platform or deck of iron, extending from its upper part entirely round the after part of the vessel, thus inclosing the lower after body in a water-tight tank. If a screw shaft passes through a bulkhead, it is to be made water-tight at the bulkhead. All plating, of bulkheads to be of the thickness prescribed in Table G, and to be closely fitted between two frames or ribs at each side of the vessel, and strongly rivetted through them; or if attached only to one frame, then to have brackets or knee-plates rivetted horizontally against the side plating of the vessel, and to the bulkheads, foreside and aftside alternately, near the middle of the outside plates, to be strongly rivetted thereto. *Lining pieces between these frames and outside plating, in way of bulkheads, are to be plates extending in one piece from the foreside of the frames afore the bulkhead-frames to the aftside of the frame abaft the bulkhead-frames; also the bulkheads to be supported vertically by angle irons of the dimensions given in the Table G, which are not to exceed two feet six inches apart, the whole to be efficiently connected and rivetted together, and to the corresponding floors, beams of the several decks, and the frames or ribs. The whole of the bulkheads to be caulked and made thoroughly water-tight.*

SEC. 13.—Will require wood ceiling, to be fastened so that it may be easily removed for survey and painting.

SEC. 14 will stand as follows, viz. :—The waterways and planksheers, if of wood, not to be inferior in quality of material to that which is prescribed in Table A for vessels built of wood of the same grade. The flat of upper deck to be fastened by screw bolts put through from the upper side, and to have nuts at the under side of the angle iron of the beams:—where the planks exceed six inches in width, two bolts in each plank in every beam, one of which may be a short screw bolt. The waterways to be fastened with screw bolts with nuts at under side of stringer plates.

SEC. 15 will stand as follows, viz. :—All vessels are to have stringer plates upon the ends of each tier of beams, to be not less in breadth and thickness than the dimensions given in Table G, the said stringer-plates to be fitted home and riveted to the outside plating at all upper decks, and at the middle deck in vesels having three decks, with angle iron of the dimensions given in the Table; and the stringer plates of the middle deck of ships with three decks to have an additional angle iron extending all fore and aft inside of the frames, and riveted to the reverse angle iron on the frames. All vessels to have upon each tier of beams a tie-plate* each side the hatchways, of the dimensions given in Table G, extending all fore and aft throughout, and well riveted to the upper sides of all the beams, deck hooks, and transoms. Also to have plates, where practicable, of the same dimensions, extending diagonally from side to side, riveted to the upper side of beams and stringer plates.

The following has been added as a foot-note to this section, viz. :—

* Upon hold beams where no deck is intended to be laid, or where such tie-plates would materially interrupt stowage of cargo, an angle iron, of the dimensions given in the Table G for "Angle Iron on Beam Stringers," will be admitted in lieu thereof, placed at the middle line, extending all fore and aft throughout where practicable, and well riveted to all beams, deck hooks, and transoms.

TABLE G, defining the minimum dimensions of frames, plating, rivets, &c., has been amended in several important particulars:—the spacing of the frames in ships claiming the 12 years' grade has been extended to eighteen inches; and the outside plating for all grades has been increased in thickness $\frac{1}{16}$ th of an inch. It will be seen also that the Table G has been amended in some minor particulars. The table, as amended, can be obtained at this office on application, or from the Surveyors at the outports.

By order of the Committee,

GEORGE B. SEYFANG,

Secretary.

2, White Lion Court, Cornhill, London, (E.C.)

21st May, 1857.

